THE CULTIVATOR.

"TO IMPROVE THE SOIL AND THE MIND."

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Should the Farmer be a Man of Knowledge?

EDITORS OF THE CULTIVATOR:—As *you* well know, a controversy has been going on for many years between the plow-joggers on one side, and the Agricultural Journals and 'book-farmers' on the other, as to whether *the Farmer should be a man of Knowledge?*

The first named class contend, that to follow the dogmas of tradition, and, under such guidance, toil and sweat away life in mere physical labor; to read and write indifferently, or perhaps make his mark; to study his almanac faithfully, and plow, sow and harvest according to the old or new of the moon; to chalk his 'deal' on the barn-door or his hat; to avoid an agricultural paper, or a 'book-farmer,' as he would a pestilence; to extract the fertility of the soil, and leave mother earth with her future generations, to shirk for themselves as best they can:—that *these* are the kind of qualifications to make a good farmer.

The other class contend, that the farmer should be a man of reading, observation and study; that his calling involves a degree of scientific inquiry equal to that of almost any other; that inasmuch as the advancing spirit of the times is in other callings continually crying out—"Onward!" he should partake of that spirit, advance with others in education and mental discipline, and claim, and be able to take, equal rank with the highest.

Being, on the whole, rather inclined to favor the views of the last-named class, I shall briefly survey a portion of the ground involved in the question, in order to see for myself whether the Farmer should be a man of general as well as particular knowledge. If I find the 'lay of the land' such as I suppose it to be, I shall take a decided stand with my friends, the Journals and 'book-farmers.'

In the short and graphic account given us of the Creation, we are informed that after form had been given to matter, and the vegetable and lower animal world had been brought forth to life, man was made, in the image of his Creator, to be lord of his other works, and commanded to subdue and cultivate the ground. Or, in the noble lines of the poet:

> "There wanted yet the master-work, the end
> Of all yet done; a creature who, not prone
> And brute as other creatures, but endued
> With sanctity of reason, might erect
> His stature, and upright with front serene
> Govern the rest, self-knowing; and from thence,
> Magnanimous, to correspond with heaven:
> But, grateful to acknowledge whence his good
> Descends thither, with heart and voice, and eyes
> Directed in devotion, to adore
> And worship God Supreme, who made him chief
> Of all his works."*

The pursuit, then, originally assigned to man, was that of Agriculture, and thus did his Maker confer superior dignity upon it. He was endued with reason, to distinguish him from, and elevate him above the lower animals, and to enable him, among other things, properly to subdue and cultivate the earth. Reason is by far the most important of man's intellectual powers. By it he devises means to accomplish ends, distinguishes truth from error, or, in other words, acquires knowledge. It is also progressive from infancy to age. It is on the right use of reason that our success, both in the pursuit of knowledge and happiness depends; and in proportion as we acquire knowledge, so, in turn, is reason enlarged and strengthened, and we are thus enabled to make still higher acquisitions. To accomplish desirable ends, then, the original gift should be improved by the attainment of knowledge.

Knowledge expands the mind of the farmer from mere attention to details and brute force, to an extensive comprehension of general principles—those great cardinal principles by which nature is governed in her operations, and with which he necessarily comes in contact every day. In the business of cultivation, an infinite diversity of principles and mysteries arise to the thoughtful mind, many of which, if ever understood at all, must be wrought out by the utmost efforts of perfected Science, and a cultivated mind. Few of us, indeed, can give a satisfactory reason for many of the simplest operations of nature which are continually before our eyes. We are therefore about as liable to go wrong as right, in some of our commonest methods of tillage.

It has been said that "Mind is the great lever of all things; human thought the process by which human ends are ultimately attempted." If this be true, then, in proportion as the mind is expanded by knowledge, so is this lever lengthened and strengthened, by which we open the vast frame-work around us, diffuse light where all before was darkness, solve problems which otherwise would never be known or only seen in dim obscurity, and subject and mingle elements before beyond our control. In short, we are thus enabled the better to obey the divine command to subdue and cultivate the earth, and to use its elements and its creatures for desirable ends. The ejaculation of an ancient fabled combatant, when enveloped in clouds and darkness, is an appropriate petition for us farmers, benighted as we are, in ignorance of great principles with which we daily have to do:

> 'Dispel these clouds, the light of heaven restore,
> Give me to see—and Ajax asks no more.'

Knowledge exalts all the faculties of the mind. However much exalted, they will find ample scope for exercise in the pursuit of Agriculture. It is an occupation that eminently combines science with practice. If the powers of observation, reflection and generalization are quickened and exalted by

* Milton.

knowledge, so as thereby to become more nearly adequate to the demands that the business naturally makes upon them, we may produce results, of which a state of arrogant ignorance never dreamed, nor was ever capable. Thus we see, that when we have given the farmer a taste for the acquisition of knowledge, we have made him a better bequest than money; for we have given him the habit of *thinking*, and that is the principle of all legitimate prosperity. It enables him at once to act and operate, to compare, contrive, invent, improve, and perfect,—to accomplish his ends in higher and still higher degrees.

Then, too, the business of the farmer largely admits of, nay, in our view, it demands, observation and thought. While engaged in the health-giving labors of the field, breathing the invigorating air, and conversant with the principles and beauties of nature around him, he may pursue habits of thought to an extent, and with an elasticity and vigor of mind, which the student of the closet, struggling with an attenuated frame, trembling nerves, and a throbbing head, often sighs for in vain. We farmers who have not yet felt the importance of cultivating and *using* the thinking faculty to some valuable purpose, may with propriety receive and ponder the address of a profound thinker:

"My friend, *to have thought far too little*, we shall find among the capital faults in the review of life. To have in our nature a noble part that can think, would be a cause for infinite exultation, if it actually did think as much and as well as it can think, and if to have an unthinking mind were not equivalent to having no mind at all. The mind might, and it should be, kept in a state of habitual exertion, that would save us from needing to appeal for proof of its existence to some occasion yesterday when we did think or to-morrow when we shall. If all the short spaces of time in which we have strongly exerted our faculties could be ascertained, and reckoned together into one place, what a small part of life it would fill! The space, however, may be deemed the total of *real* life."*

Knowledge refines the taste, thus enabling us to perceive and enjoy the beauties and sublimities of nature. A state of ignorance cannot be favorable to the emotions of taste. Neither do we look for its exercise in the *mere* getter or hoarder of money, the man of loose morals, or dissolute habits. Refined taste is intimately allied to morals, for it naturally elevates the mind and ennobles the character of its possessor; and thus it is that knowledge, by refining the taste, indirectly favors virtue. Who, *if not the farmer*, should possess and enjoy a refined taste? The great Author of all has adorned his works with beauties and sublimities, that may excite the highest and purest emotions of which the human mind is susceptible. They solicit the senses of the farmer at every turn. The endless variety and beauty of flower, plant and shrub; the various stages of vegetation, from the germination to the full maturity of his crops; the majestic forest; the landscape of mountain and valley, of lake and river; the circling seasons; the wondrous workings of nature beneath his feet, as well as the sublime 'handy work' above him:—these all invite the husbandman to observation, and gently persuade, or more powerfully urge him to contemplate, through them, the great Author and Ruler of all.

Knowledge, both in acquisition and possession, contributes to happiness. The farmer has many leisure hours, during the stormy days of a season when he cannot work, and the long evenings of winter. These, if he has a taste for reading, he may beguile in an innocent, useful and happy way at home; while others, dependant upon foreign resources, repair to places of public amusement or dissipation, seeking an object that constantly eludes their grasp, or, if momentarily detained, usually turns to emptiness or pain. There is no pastime that in variety compares with the pursuit of knowledge. While the objects of inquiry are endless in number, each attainment is attended with new satisfaction and delight. A taste for literature or scientific inquiry once acquired, usually becomes confirmed into a habit for life, and forms an unfailing source of pleasure in old age. The growing infirmities incident to that period of life, bring many days of confinement and weariness, which may be greatly relieved by reading, or, if that be impracticable, by hearing others read. This arises naturally and necessarily from the very structure of the intellectual element.

"A degree of surprise and astonishment which cannot consist with the perfect comprehension of whatever falls under our cognizance, appears to be one ingredient, in the highest degree of felicity of which a rational being is susceptible. There is a principle in the constitution of our nature, which renders us dissatisfied with what we thoroughly understand in all its parts. When there is nothing more to be discovered, from that moment it begins to pall upon us, and we must pass to something which will give scope to the activities of the human mind."*

There is no amusement so cheap as that arising from the pursuit of knowledge. A trifling sum set apart annually, will purchase the advantages afforded by our numerous district, village, and other libraries, and our able agricultural, scientific and literary periodicals.

There are no circumstances so adverse as to preclude our attaining knowledge, if we resolutely strive for it. One is forcibly struck with the truth of this remark, in thinking over the long list of worthies who, under every disadvantage, and in addition to carrying forward some practical calling, have raised themselves to eminence in the empire of knowledge. In them, we find realized that most desirable, but quite too rare union, of studious habits with a practical business. Their example is most valuable too, as illustrating the fact that a taste for knowledge will, of itself, do a great deal towards its acquisition; and that where this taste exists, it usually surmounts all difficulties and bursts all barriers. Be it further remembered for our encouragement, that the kind of knowledge which gives strength does not so much depend upon the reading of *many* books, as upon the judicious selection and careful reading of a few, accompanied by the strenuous exertions of our own powers of reflection. In this way, all our powers become stimulated, and products begin to grow from within.

Knowledge is useful and important to man as a religious being. It is true that Christianity invites us all to partake of its blessings, upon compliance with its terms, whether we be learned or ignorant. But it addresses the understanding as well as the heart; its evidences challenge investigation; its hopes are addressed to the immortal element; its sublime faith calls forth the whole intellectual power; and the doctrine of immortality invests the mind of man with a dignity and grandeur, allied to a purer and nobler state of intelligence. In whatever other respects, then, we might conclude to dispense with the advantages of education and know-

* Correspondence of John Foster.

* Robert Hall.

ledge, when we consider man as a religious and immortal being, we wish to see his mind expanded, his faculties exalted, and his taste refined, that he may the better understand his duties and his destiny.

Knowledge, with virtue, is the foundation on which our whole system of government rests. The practical operation of this system creates a demand for every species of intellectual effort. As citizens under it, we are called upon to discharge the duties of elective franchise, to take part in the administration of justice, and to fill the various official trusts of State. The laws contemplate our fitness to discharge these various duties and trusts, under the guidance of opinions intelligently and independently formed, along with that sense of individual accountability which seeks not to hide itself in the crowd, or to be led by other dictation than its own. The correctness and eminent propriety of our theory in this regard, cannot be doubted. The nearer we approach it in practice the safer is our condition. When we reflect, that as our country increases in population and in extent of settled territory, various new and conflicting interests and questions will arise to increase and inflame partizan zeal—that a high state of faction tends to corruption—that there *are* precipices on either side of us whose *outer borders* would seem to forbid exploration further along—and that the huge swells of faction *may* rock us back and forth until we sway over into the chaos below;—we become more and more impressed with the importance of educating our rural population in knowledge and virtue, of combining in our farmers strong heads with honest hearts, that we may keep balance on ground, central from the broken extremes, and known and safe, where all sorts of good fruit grow in abundance, where prosperity has ever dwelt, and where it may ever dwell.

Our vast territory embraces every variety of climate and soil. It is capable of growing almost every known valuable production. The race of men inhabiting it is endowed with wonderful native sagacity and energy of purpose. Let this mass of mind be expanded and strengthened by knowledge, and a power is conferred for the development of our vast agricultural capabilities, not elsewhere to be found. It has been well said that "it is the glorious prerogative of the empire of knowledge, that what it gains it never loses; on the contrary, it increases by the multiple of its own power; all its ends become means; and all its attainments help to new conquests."* In this view of the subject, how directly does it become power to the farmers! Through them collectively, how eminently does it become power to the nation!

In this connection, we may appreciate the important influences imparted by our Agricultural Journals. They quietly visit the farmer at his dwelling, informing him of the known principles of Agriculture, and the march of Science towards further discoveries. They give him the results of the experience and practice of intelligent cultivators every where. Mind thus rubs against and polishes mind, and enterprise, and an ambition to improve, is excited. They stimulate him in turn to communicate his own ideas and modes of practice. When he has been induced to arrange his thoughts upon paper, an important step has been taken towards intellectual improvement. He is now in the way of thinking with greater precision and correctness on *all* subjects, and he awakens with a consciousness of power within himself that might not otherwise have been known.

* Hon. D. Webster.

Great advantages are yet to arise from the establishment of Agricultural Schools, and professorships of Agriculture in our Colleges. Organised on judicious principles, they would teach our young farmers the science and best mode of practice of Agriculture. In doing that, they would necessarily teach the *elementary* principles certainly, of six or eight sciences; and this would be likely to create a taste for the further investigation of those sciences, for reading and the acquisition of knowledge in general. In short, by these influences, imparted at a forming period, the boy comes to be a man of cultivation, of intellectual power. Expanded and well disciplined intellect always takes high rank among men. Thus we may conclude, that the farmers would oftener be heard to some purpose in the Councils of the nation, and the interests of Agriculture would receive more of that attention from Government, which they justly merit.

I have thus endeavored to survey a part of the ground covered by the question propounded at the outset. To my mind it is clear, that the Journals and 'book farmers' have a good and substantial argument in their favor; and I am forced to conclude that *the farmer should be a man of knowledge*, and I do not see that it could hurt him to have a good deal of it too. F. Holbrook. *Brattleboro,' Vt., Dec.* 15, 1849.

Live Fences.

The particular advantage of any kind of fence, depends on circumstances. Where suitable stones can be readily obtained, perhaps there is no fence to be preferred to a well-built and permanent wall. If the stones, in the outset, occupy the land so as to interfere with cultivation, the inducement for making wall is increased. In some places, the abundance and cheapness of suitable timber for fences, render it most economical to construct them of that material.

The comparative advantages of live and dead fences, in general terms, may be thus stated: Hedges can be reared where the materials for dead fences cannot be had, and, excepting the best of walls, are greatly superior in durability; dead fences commonly occupy less room, shade the ground less, and neither exhaust its moisture or richness, as is done by hedges.

The best plants for hedges in this country are undoubtedly the Buckthorn and the Osage Orange. We think the various trials which have been made with different plants, support this conclusion. The Honey Locust, which was considerably tried a few years since, fails to grow thick enough at the bottom, and is generally straggling and open. The English Hawthorn does not stand our hot and dry summers, and is liable to a blight similar to the "leaf-blight," and "fire-blight" in pear trees. The Newcastle, or American Cock-spur Thorn, and the Washington Thorn, have formerly been used extensively in some of the middle States, particularly in Delaware, where they succeeded well, but within a few years, the fine hedges of that section have all been destroyed by the borer, and this insect has also attacked the Hawthorn with equal fatality in many instances. It is true there are some neighborhoods where the Hawthorn has mostly escaped the casualties here mentioned, as in some parts of Seneca and Ontario counties, in this state; but its failure has been so general in most parts of the country, that it cannot be depended on as a hedge plant.

For the northern states and the Canadas, we

should prefer the Buckthorn. Our reasons for the preference are its hardiness, its comparative exemption from disease, and from the attacks of insects, its rapid growth, and the general facility with which it may be made to answer the purpose of an efficient fence.

In our last number, we mentioned the Buckthorn hedges of E. HERSEY DERBY, Esq., of Salem, Mass. We think we have never seen more perfect hedges than these, and it may be interesting to the reader to learn something of Mr. D.'s mode of managing them.

In the *Transactions* of the Essex (Mass.) Agricultural Society for 1842, there is a paper on the cultivation of live-fences by Mr. DERBY, for which

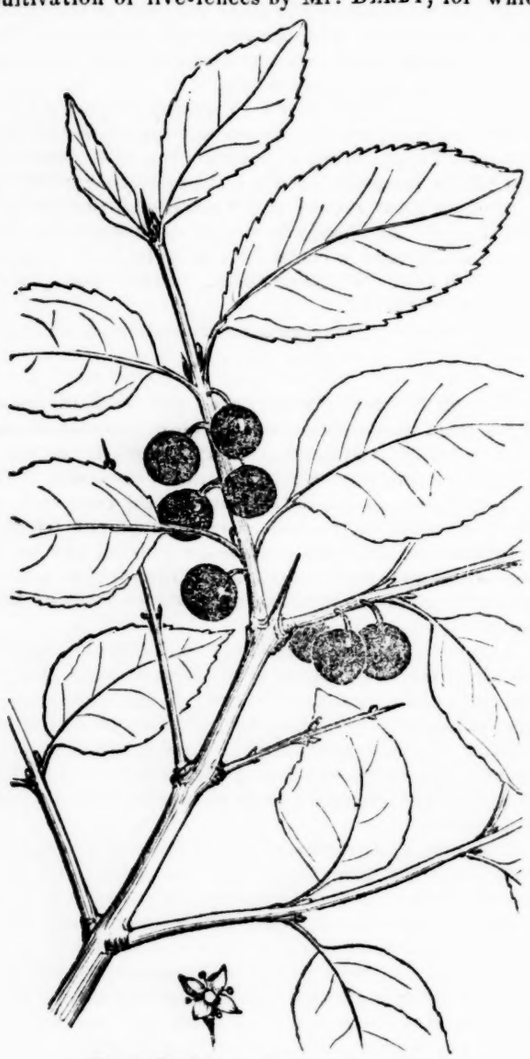

Fig. 1—Buckthorn—*Rhamnus catharticus*

the society awarded him the first prize offered on that subject. Mr. D. stated that it was then more than forty (now fifty) years since he commenced the trial of live-fences. His first trials were with the English Hawthorn, the Honey Locust, and the Crab Apple, all of which failed. In 1809 he made his first trial of the Buckthorn, in a hedge about twenty rods long, which has remained till the present time, not a single plant having failed from it, nor has it ever been known to be attacked by any insect. He has at various periods set out more Buckthorns, till he has now nearly 200 rods of them, forming a perfect fence. He says—

I do not hesitate to pronounce the Buckthorn the most suitable plant for hedges that I have ever met with. It vegetates early in the spring, and retains its verdure late in autumn; I have often seen it green after the snows had fallen; it is never injured by our most intense cold, and its vitality is so great that it may be kept out of the ground a long time, or transported any distance without injury. It never sends up any suckers, nor is disfigured by any dead wood; it can be clipped into any shape which the caprice or ingenuity of the gardener may devise; and being pliable, it may be trained into an arch, or over a passage way as easily as a vine; it needs no plashing or interlacing, the natural growth of the plant being sufficiently interwoven. It is never cankered by unskillful clipping; but will bear the knife to any degree.

Mr. D.'s mode of cultivation is as follows:

My method of forming a hedge is to set the young plants in a single row, about nine inches apart, either in the spring or autumn; if the latter, I should clip it the following spring to within six inches of the ground; this will cause the hedge to be thick at the bottom, which I regard as a great point of excellence; after this, all that remains to be done is to keep it clean from weeds, and clip it once a year. I consider June the best time to trim, as it soonest recovers its beauty at that season. The clipping may be done with the garden shears, a hedge-knife, or even with a common scythe.

Buckthorn plants, of proper size for transplanting into hedge-rows, may be had in abundance at most of our nurseries. The price for two-year-old plants is usually about $5 per thousand. They may be easily raised from seed, which may be had of the various seed-dealers at $1.25 per quart. It is usually planted in the fall, and most of the plants will make their appearance the next season, though some of the seed may lie in the ground till the second season before it vegetates. They may be planted on good land in the same manner as peas are planted, and the plants kept free from weeds until they are of sufficient size to put in the hedge-row, which size they will reach in one year, on rich land, and in two years on ordinary soil.

The preparation of the soil for the hedge plants, may be similar to that required for a crop of Indian corn, and as above remarked, all that is necessary is to keep the weeds and grass from growing near them. If the ground is wet, it has been found beneficial to dig trenches, two feet deep, and half fill them with small stones or coarse gravel, the natural soil being laid on the top, forming a slight ridge.

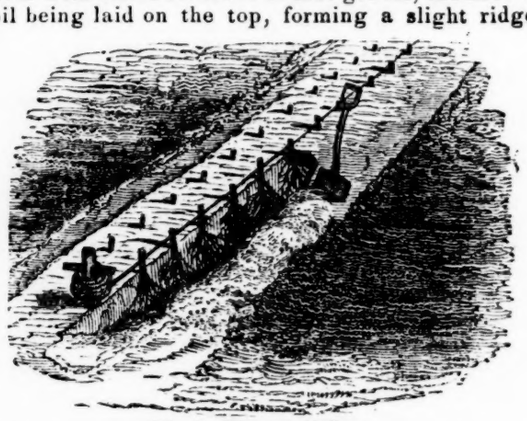

Fig. 2.—Planting Hedges.

This has been practiced with success on the level and somewhat wet lands of parts of Seneca county, in this state, as noticed in our volume for 1847, page 257.

The accompanying cut (fig. 2,) represents the manner of planting hedges. The details of planting are well described by Mr. DOWNING, in the first volume of the *Horticulturist*. He thinks the spring is the best time for planting, in the northern states, the autumn in southern. The soil having been properly prepared, by pulverization, &c., he says—

The plants are now to be made ready. This is done in the first place, by assorting them into two parcels—those of *large* and those of *small size*. Lay aside the smaller ones for the richest part of your ground and plant the larger ones on the poorest of the soil. This will prevent that inequality which there would be in the hedge if strong and weak plants were mixed together, and it will equalize the growth of the whole plantation by dividing the advantages.

The plants should then be trimmed. This is speedily done by cutting down the top or stem, to within about an inch of what was the ground line) so that it will, when planted again, have but an inch of

stem above the soil,) and by correspondingly shortening all the larger roots about one-third.

If you have a good deal of planting to do, it is better to bury the plants in a trench close at hand, or *lay-them-in-by-the-heels*, as it is technically called, to keep them in good order till the moment they are wanted.

The hedge should be planted in a double row, with the plants placed not opposite to each other, but alternate—thus:

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* * * * * * * *

The rows should be six inches apart, and the plants one foot apart in the rows. This will require about 32 plants to a rod, or 2000 plants to 1000 feet.

Having well pulverised the soil, set down the line firmly for the first row, and with a spade throw out a trench about eight or ten inches deep, keeping its upright or firm bank next to the line. Drop the plants along the line at about the distance they will be needed, and then plant them twelve inches apart, keeping them as nearly as possible in a perfectly straight line; for it is worth bearing in mind, that you are performing an act, the unimpeachable *straight-forwardness* of which will undoubtedly be criticised for many years afterwards. Press the earth moderately round the stem of the plant with the foot, when the filling-in of the pulverized soil is nearly completed. And, finally, level the whole nicely with the hoe

Having finished this row, take up the line and fit it again, 6 inches distant; open the trench in the opposite direction, and set the plants in the same manner. This completes the planting.

Fig. 3.—Osage Orange, (*Maclura aurantiaca.*)

The Osage Orange grows wild in Arkansas and Texas. It is said to have been first introduced into our gardens, from the Osage tribe of Indians. In its natural state, according to Mr. DOWNING, "it grows luxuriantly, about thirty or forty feet high, with a wide and spreading head." The leaves resemble those of the orange, are very glossy, and present a most beautiful appearance, on which account it was first propagated as an ornament. Within the last few years it has been largely adopted for hedges, and in the middle and western states has done well. We have seen fine hedges of it in the neighborhood of Cincinnati, Ohio. Whether it will prove sufficiently hardy for the northern and eastern states, has not yet been demonstrated; but its success, so far, entitles it to further trials. JOEL RATHBONE, Esq. has a fine hedge of this plant, four years old, on his place near this city. It has not been injured by the frost, except the first winter, when it was killed down to within a few inches of the ground. Mr. A. J. DOWNING observes—

The Osage Orange, when treated as a hedge plant, has many excellent characteristics. It is robust, vigorous, and long-lived. It sends out a great abundance of branches, bears trimming perfectly well, is most amply provided at all times with stout thorns, and its bright and glossy foliage gives it a very rich and beautiful appearance. It grows well on almost any soil, and makes a powerful and impenetrable fence in a very short time. Though it will bear rough and severe pruning, and is therefore well adapted for farm fences, yet it must be regularly trimmed twice every year, and requires it even more imperatively than other hedge plant, to prevent its sending out strong shoots to disfigure the symmetry of the hedge.

It is propagated by seed and by cuttings of the roots. A writer in the *Cincinnati Gazette* says—

The best way to start a hedge of this plant, is to procure some of the seeds, of which about 7,000 are comprised in a quart. Scald them in water near the boiling point, and plant them in nursery beds, in good soil, and keep down the weeds the first year. In transplanting, the plants should be set about 12 inches apart. These facts will enable any person to form a correct judgment of the number necessary to plant in any given length of hedge. The seed should be sown early in the spring, and if not preferred to sow as above in a nursery bed, to be afterwards transplanted, it may be sown where the fence is wanted, by preparing the ground, and using a garden line to get the fence straight, covering the seed lightly with fine earth. When the plants are up, they must be kept clean and well hoed; and in the fall they should be headed down to within two or three inches of the ground.

The seed may be had at $1 per quart, and plants at $6 to $8 per thousand.

Principles of Manures.

ANALYTICAL LABORATORY, YALE COLLEGE,
New-Haven, Conn., Jan. 7, 1850.

EDITORS CULTIVATOR—Having mentioned in my last, the subject of manures, as that which should be the topic of this and succeeding communications, I now proceed to direct the attention of your readers to the true signification of the word manure in its various applications. This may seem to many a very unnecessary labor, but I hope to convince them that it is not.

Under the grand head of manures, have, in these modern times, come to be included a great variety of substances, which may be divided into three classes—animal, vegetable and mineral manures. In mentioning any of them, we mean something that of itself, or by its action upon other bodies, imparts fertility to the soil, increasing, in other words, its ability to bear good crops. More than this, every farmer who reads attentively, has learned that the efficacy of a manure consists in its supplying to the plant, directly or indirectly, certain substances which it needs to promote its growth. Manures are in fact, food for plants.

This is a great advance in knowledge, but is not, by any means, all that ought to be known. As we proceed a step or two further in our inquiries, we find that plants are differently constituted, and that manures have an almost infinite variety in their composition. The subject thus becomes difficult; but we are enabled at once to draw the important conclusion that different plants require different manures; that the manure which highly benefits one crop may even injure another.

We are thus led naturally to the conviction that some classification of fertilising substances is necessary—that some rules are demanded by means of which the farmer can at least approximate to the value of any manure of which he knows the composition or the leading ingredients. He understands

for instance, that guano is valuable, and knows what are its effects upon his crops; but is he aware upon what, in the guano, those powerful effects depend? Could he, if an unknown substance equally rich in its composition were presented to him and the names of the elements which it contained given, say that it was worth much or worth any thing as a manure? I feel quite sure from my own experience, that the majority of our farmers, notwithstanding all that has been written on these smbjects, would have to answer this question in the negative.

It is for such reasons that I am about to attempt a plain statement of some points connected with this important branch of agricultural knowledge, in the hope of making them clear and intelligible to at least a part of your readers.

I have already mentioned three great divisions—animal, vegetable, and mineral manures. In the two first of these, are two classes of bodies—those which burn away by heat, called organic bodies, and the ash which remains after burning, consisting of mineral or inorganic bodies; of these last, the latter division of the three, the mineral manures, are entirely composed. The inorganic part in animal or vegetable manures, is usually quite small; as they are of course derived from the death and decay of plants and animals, it follows that in those forms of organised existence, the organic part also, as a general rule, predominates. Although then in these manures, the inorganic part is small, it is enough to supply the wants of the plants, by furnishing the materials for both classes of bodies which they contain, the combustible and the incombustible, the organic and the inorganic. The mineral manures, on the contrary, can for the most part only nourish and increase the inorganic part of plants, and are consequently more limited in their application.

It is next of importance to know what are the substances thus furnished by the various classes of manures. All the organic part of plants and animals, in the immense variety of their forms, shapes and sizes, and consequently all of that part in the numerous manures which are employed by the husbandman, contain but four substances, named Carbon, Hydrogen, Oxygen and Nitrogen. The first of these, Carbon, is a solid, of which charcoal, black lead, &c., are examples; the others are gases or kinds of air. This is one of the most striking facts connected with the advance of modern chemistry, that all forms of organised life should be ultimately resolved into these four bodies, excepting alone the small proportion of ash which most of them contain. This ash, the inorganic or mineral part of plants, animals and manures, consists of more numerous substances; they form, however, not by any means a long list. They are potash, soda, lime, magnesia, iron, silica, chlorine, sulphuric acid and phosphoric acid, nine in all. There are one or two others occasionally included, but they do not seem to be of much importance to to our cultivated crops.

I mention these simply for the purpose of giving their names; to describe the appearance and properties of each would be foreign to my present purpose. Any farmer who wishes to become acquainted with them personally, can easily find directions which will enable him to accomplish his desire. Their names and numbers being now given, in my further remarks reference may be made to them without causing the reader to feel as if he were on entirely unknown ground, or among utter strangers.

From the connection in which the organic and the inorganic parts of plants, animals and manures were placed, the nature of the relation between the two former and the latter, will now be plainly seen; the farmer will understand that to his knowledge of the fact that manures are the food of plants, he has added the names of the substances which constitute that food.

This is an important step gained, but it only plunges us into fresh difficulties as we come to examine the diverse effects of the various fertilizing substances which are considered valuable, and which indeed experience has proved beyond a question to be so. In looking over accounts of results obtained by using different manures of known composition, the farmer perceives great variation in their apparent effects. A small quantity of guano for instance, is more powerful in enriching the soil and hastening the growth of plants, than a whole load of ordinary manure, weighing probably fifty times as much This is a very striking difference, and leads to a comparison as to the composition of the two manures. It is found first, that the barn-yard manure contains a large quantity of water which of course deteriorates so much from its value; second, on examination of the dried residue in each, it is found to consist of the same substances. These are not, however, in the same proportions. In the guano, we find that *ammonia* and *phosphates* are the leading ingredients; in the barn-yard manure, carbon and silica.

Here is a tangible difference, but the most doubtful feature in the case to the farmer, has yet to be explained. He points to the analyses of plants and says, "silica in the ash and carbon in the organic parts are most prominent substances, and why are they not equally valuable with the others that are less in quantity?" Ammonia owes its value to the nitrogen which it contains, and phosphates theirs to their phosphoric acid, they being combinations of that acid with lime, magnesia, iron, &c. Nitrogen and phosphoric acid then are added most largely by guano, silica and carbon by farm-yard manure. What is the cause of so wide a variation in effect upon all crops? Why are the two first worth more than the two last, since plants do not contain so much of them?

To this I reply at once that they are not in themselves more valuable or more necessary, and shall proceed to show that their superior importance is owing to circumstances alone.

First, as to phosphoric acid. In the straw and husk of grain we find little of this substance, but in the grain itself fully half of the ash is composed of it; it is present in the grain because that is the natural food of the animal in which must be contained the material for building the bones, the frame-work of the animal body, these being made up chiefly from phosphate of lime. We find the same thing to be true of nitrogen; in the straw and all those parts of plants that are not of much value as food, there is little of it, but in the grain and all food considered particularly nutritious, there are certain substances quite rich in nitrogen. This body constitutes a principal part of animal flesh, and thus food which contains much of it is remarkably nutritious because it supplies this material toward the increase of the body. Ammonia is important in manures, because it is a chief means of furnishing nitrogen to the plant.

This brings us to the point which I wish to impress. When we examine a soil, we find that its fertility or barrenness, depends on the presence or absence of the various substances named above. If one of them is wanting, the capacity of the soil for bearing good crops is greatly diminished. The *most likely deficiency* in long cultivated soils, is in the *phosphates*, and in bodies containing *nitrogen*. In *new* soils, these *two classes* are as a general rule

smallest. Every farmer knows that it is ordinarily the *grain* which is sold off, while the *straw* is returned as manure. The grain, as we have seen contains most of the phosphates and of the nitrogen, so that of course these bodies, originally small in quantity, are soonest exhausted. Here then, we have the reason for their efficiency. The carbon, oxygen, hydrogen, lime, potash, silica, &c., are each and all equally indispensible to the plant in its various parts, but they are much more abundant, there being comparatively few situations where the plant cannot obtain a supply of all or nearly all. The scarcity of the phosphates, and of ammonia or other bodies containing nitrogen in the soil, gives these substances a high relative value, and causes manures which contain them in large quantity, to produce such a marked effect.

My desire to make this subject plain, has extended this letter somewhat unreasonably, but if I have made myself understood, I am sure that no farmer will have found clear explanations upon such an important branch of his profession, very tedious. JOHN P. NORTON.

The State of Agriculture in Europe.

Professor Johnston's Address,

Delivered at the Annual Exhibition of the New-York State Agricultural Society, at Syracuse, September 13, 1849.

GENTLEMEN:—One of the first lessons a European has to learn after he has landed on the shores of this new world, is to dispossess his mind of all those associations, rich and rare, with which the history of past ages has connected the names of remarkable places. In passing through New England it was my fortune to stop at towns and villages called by names long familiar to my ears– the sounds of which seemed to say, "in a few hours or minutes you will arrive again at your own home and hearth."

But in travelling from Albany to this place, I have met with people fresh from Troy—I have come through Utica and Rome—and from the lips of children have heard of other mighty cities which our earliest European lessons clothe in the hoar of remote antiquity, and illuminate with the glory of immortal deeds. In the desire thus to connect your new towns with the recollection of famous actions, I would read an admiration of the actions themselves, and secret aspirations after similar renown.

In the old world I have just left, there exists an ancient Syracuse, rich in all those bounties of heaven, which especially favor the husbandman—a genial and sunny clime—clear, blue skies, balmy air, and never failing dews—a soil fertile in oil and wine, and abundant in corn, almost beyond belief.

Thousands of years ago, when no Saxon or Celtic foot, not even that of the roving Northmen, had yet trodden the American shores, this ancient Syracuse was the capital of a kingdom of six millions of souls; and though it had so many mouths of its own to fill, the produce of its teeming soil left still a large surplus for exportation. An energetic people, comparatively free—unbroken in spirit by frequent wars, by foreign conquerors, and by the degradation and oppression which afterwards beset their domestic hearths—availed themselves to the utmost of the bounties of nature, and by patient industry made their country the "*horreum Romanorum*," and in the language of Livy, "*populo Romano, pace ac bello fidissimum annonæ subsidium*." Now cast down and degraded, the successors—scarcely to be called the sons of the same people—languish in comparative indolence; and though the bounties of nature are ever fresh and new as in its palmiest days, there are few countries in which agriculture and the arts of life are in a more debased condition than in modern Sicily.

But time, which has wrought this melancholy change, has caused others more cheering to happen too. It may be, that amid the ruins of old Syracuse its ancient fires may still live, on some future day to be lighted up anew, and more successfully, into a steady and enduring flame, which the foot of despotism shall never again be able to trample out. But however this be, it is gratifying to me to see—as it must be to you—that in a new country, peopled by a new race, a younger Syracuse has sprung up, emulous of the worth and glory of the ancient—nourished by free institutions—carried forward by the untiring energy of the Teutonic blood—above all, emulous of the agricultural renown of the Syracuse of distant times, and by the application of more mind and knowledge, to a less exuberant soil in a less favored clime, bent on creating a new granary of the nations, an unfailing western store-house to a great and growing people.

It is a happy omen to me, coming among you for the first time, that I should meet to discourse with you upon scientific agriculture, in a city which recalls the vast fertility of the plains and slopes of Sicily—may the modern name like the ancient, descend to after times, associated with ideas of rich cultivation and prolific fields of corn!

It is not without anxiety, as you will suppose, that I appear for the first time before a large trans-atlantic audience. But though you are American born, gentlemen, your faces are familiar to me. They tell me you have Scotch and English hearts, and I believe I may throw myself confidently on your kind indulgence.

I cannot presume to address you on the general importance of agriculture; its fundamental connection with the welfare and power of every state; the estimation in which it has been held in all ages and among every cultivated people; the natural proneness of man to till the soil; the pleasure with which the most talented men, and the highest in station, have always looked forward to the time when leaving business and profession and the cares of office to younger men, the small farm should alone employ their quiet leisure; nor upon the greater attention and respect which this art and its cultivators every where demand, and are every where receiving. These topics are familiar to you, and you are too rich in native talent to require a stranger to address you on generalities like these.

Nor does my very recent arrival in the United States, entitle me as yet to speak from my own observation upon the existing condition of agriculture on this side of the Atlantic. I have selected, therefore, as the subject of my present address, the existing condition of agriculture in Europe.

There are two very different ways in which I might bring this subject before you. I might illustrate in the abstract, the amount of practical and scientific knowledge which Europe possesses in regard to each of the departments of rural economy, which its climate enables it to prosecute. Taking the methods of the best practical men, and adding to these the knowledge of those most skillful in theory, I might present to you a picture, every detail of which was true, but the effect of which as a whole, would be to convey to you a most exaggerated idea of the actual condition of the art—even in Great Britain, where both in theory and practice it is supposed to be best understood, and most skillfully carried into operation. Or I might take you from country to country, and show you as we passed hastily along, the character of its rural population, the excellencies or defects of its cultural practices, the condition of its arable soils, the qualities and treatment of its cattle, and generally what is doing by governments and people in each country for the improvement of the rural arts. I should thus set before you a series of pictures, true, not only in detail, but in their general effects upon your minds, though not partaking of those broad and comprehensive views, which a sketch of European Agriculture, as one whole, would be expected to present.

I propose, to some extent, to follow both methods. After a brief outline of the state of practical agriculture in the leading countries of Europe, derived chiefly from my own observations, I shall endeavor to give you an idea of the position in which agriculture as an art now stands—of what is doing to advance it—and especially of the aids which science is now lending to the practical economics of rural life.

SWEDEN.—Commencing in the north of Europe with the Scandinavian peninsula, I would remark that in Sweden,—especially since the accession of the late king, Carl Johan, better known by the name of Bernadotte—much attention has been paid to agriculture. The improvement and increase of the flocks of sheep for the growth of wool, the introduction of better breeds of stock, of newer implements, and of an improved rotation of crops—have successively received much attention; but of late years the great force of the people has been expended on the drainage of the lakes and marshes with which the country is so plentifully studded over. The agricultural societies of the provinces, in conjunction with the Academy of Agriculture in Stockholm, have devoted much pains to what may be called the arterial drainage of their several districts; and though the more refined method of improvement, known in Great Britain by the name of *thorough drainage*, has not as yet been any where introduced, it is only just to the energy of Sweden to say that no European people, in proportion to its natural resources, has done more during the last twenty years in the reclamation of improveable land from the dominion of overflowing water.

Further advances are also secured by the translation, especially from the English, of the best works on scientific agriculture, under the auspices of the Academy of Agriculture, and by the establishment of agricultural schools and model farms, one of which each province is expected in a few years to possess. Thus in Sweden, as in all other countries, the period of improvement by mechanical means will be succeeded by one of improvement by chemical means—the nature and economical application of which latter means, books and schools will have taught, when the time for more generally applying them shall have come.

RUSSIA.—In Russia, agriculture as a whole is in a very imperfect condition. Here and there, especially in the neighborhood of large towns like Moscow and St. Petersburgh, laboriously and skilfully cultivated fields may be seen, while herds of improved Swiss and short horned cattle are carefully raised on the demains of the rich nobility. The Emperor also, who knows well the importance of this art to the strength and prosperity of his dominions, sets an example to his subjects by the efforts he makes to introduce a better system of culture among the serfs on the Imperial estates, by the establishment of schools for the instruction of farmers in art and experimental science, and by the maintenance of model farms upon the appanages of the crown. But Russia, nevertheless, is half a wilderness. Millions of acres of perpetual forest cover rich soils which there are no hands to till. The value of an estate is measured not by the number of acres it contains, but by the number of souls which live upon, cultivate, and are sold along with it. As in the first clearings of a North American wilderness, where land is comparatively worthless, the soil is cropped till it is exhausted, and then new land is subjected to the plow and exhausted in its turn. In no country of the world, with the exception of Northern America, is there so vast a field for the useful emigration of agricultural settlers, as in the mighty Empire of Russia. But language, and religion, and political institutions, oppose barriers which the Saxon, and I may say the Teutonic races generally, feel themselves unable to overcome.

GERMANY.—In order to obtain a correct opinion of the agriculture

of a country, a man must not only view the country with his own eyes, but his eyes must be taught both what to look for, and how to look for it. The reports of travellers who are unskilled in rural matters—the educational institutions of the country itself—and even its agricultural statistics, are all unsafe guides where a really correct appreciation is desired of its true position in reference to this important branch of social economy. This observation is illustrated by the actual condition of the several branches of rural economy when compared with the state of agricultural instruction, and with the attention that has been paid to statistics in the different kingdoms of Germany and France.

SAXONY.—In Saxony, a country greatly favored by nature in the character of its soils, the chief attention of the great landholders and of the government, has been long directed to the improvement of the breed of sheep, from which the celebrated Saxon wool is obtained. This state exhibits generally a very different appearance from the neighboring country of Bavaria. In passing from the latter kingdom to the former, you "seem to pass," says Mr. Royer, "from the desert into the land of promise." "Two-thirds of the rich proprietors in Saxony," he observes, "cultivate their own properties, and have established an order, neatness, and method, which, though far from agricultural perfection, you seek for in vain in France."

WURTEMBERG.—In the Kingdom of Wurtemberg, where the instruction at the agricultural school of Hohenheim and elsewhere, is better organized, and at this moment more famed, than in any other part of Germany, and where in fact, the art of culture as a whole is the farthest advanced, the general cultivation is described by Mr. Royer as being melancholy, and, at a distance from the capital, very different from what the eulogies of authors had led him to suppose.

BAVARIA.—In Bavaria we find an imposing array of institutions and means of instruction specially provided for the rural community, which are fitted to impress the superficial observer with a high idea of its agricultural condition. As in Wurtemberg, there is a central school of agriculture. There are also Chairs of Rural Economy in the Universities, and more than twenty Chairs of Agriculture in the Seminaries and polytechnic schools of the provinces, besides a general Agricultural Society, counting more than 8,000 members. These facts convey the impression of much zeal on the part of the government; much interest in agriculture on the part of the people; and an advanced state of the art of culture in the kingdom generally. But "the miserable aspect of Bavarian agriculture would lead one to suppose that all these means of encouragement are very inefficacious." (Royer.)

The schools are badly organized or conducted. The great landowners are indifferent on the subject, while the miserably defective condition of the roads and other means of internal communication indicate, that even the government which has organized all the formal apparatus we have mentioned, it is not itself alive to the most fundamental element of agricultural progress.

PRUSSIA cannot boast either of its practical agriculture, or of its system of agricultural instruction. It is a proof of how very little has in past ages been done in the way of teaching the rural population the principles of the art of culture, that Prussia should so long have derived an undeserved celebrity from the existence of a private agricultural school at Moeglin, established in 1806, and conducted till his death in 1819, by the distinguished Von Thaer. After his death, the school he had founded was made a Royal Academy, and is still in existence. It contains at present only twenty pupils; and even in Von Thaer's time it never contained more than thirty-four. In the much praised primary schools of Prussia, a little instruction in gardening is the only teaching which bears an immediate relation to the future occupations of the rural population.

In the nature of its soils, indeed, which are sandy, light enough to be blown by the winds, and apparently almost sterile, Prussia has much to contend with. This is especially the case in its most ancient and central Dutchies. Westphalia and the Rhenish provinces are naturally richer, and are also more advanced and better cultivated.

Besides, until the revolution of the past year, the burdens of servitudes upon land, of a feudal kind—and of which in the New World you have no examples, except a few of a milder form in the seignories of Lower Canada—were so onerous and so unequally distributed, as greatly to retard the development of its agricultural capabilities. The state of the roads and other means of communication also, as in Bavaria, and the scarcity of large towns, have concurred with other causes, in retaining the agriculture of Prussia in a very backward condition.

HOLLAND.—If from the uplands of Germany we descend to the lowlands, and especially to that country which includes the islands at the mouths of the Rhine and the Scheldt, and the low country stretching northward to the Zuyder Zee and the Dollart, we shall find reason to stay our steps and to consider calmly the cause, and purpose, and extent of the wonderful system of canals and embankments which the kingdom of Holland presents.

In a sketch of European agriculture, indeed, Holland is deserving of distinguished mention. Above all other European people, the Dutch, though slow, have been patient and persevering in their agricultural labors. Occupying a few more elevated and fertile alluvial spots, in the midst of downs and bogs, and marshes and lakes, and the endless ramifications of many rivers, they have century after century, struggled against nature. Draining marshes, pumping out lakes, damming back seas and rivers, reclaiming bogs, fixing by art the wandering downs, interlacing their country with an interminable net-work of gigantic canals;—by such labors as these, they have extended the productive surface of their country, secured its possession, and made its natural riches available. And what makes their praise the greater and more deserved, is the constant watchfulness and care which the retention of their country demands. Exposed on the average of the last thirteen centuries, to one great sea or river flood every seven years, the possession of the land they have gained is never secure. Lying below the actual level of the sea, large tracts of it are only preserved by the huge dykes that surround them, and to maintain these dykes requires unceasing vigilance, and a large yearly expenditure of money.

And though in past times the Hollanders have done great engineering works, yet the spirit of the sires is not degenerated in their living sons. The draining of the Haarlem lake, now in progress, is the boldest mechanical effort ever yet made in the cause of agriculture in any country, and promises to add no less to the material wealth, than to the engineering and constructive fame of the United Provinces.

I feel a pleasure in thus adverting to the impression made upon my own mind, during my various tours in Holland, in the presence of a meeting of agriculturists, many of whom may inherit from the early settlers of New York, a portion of that industrious and patient blood, which makes every end sure to the determined and persevering man.*

I may mention as an indication of the early desire of the Dutch authorities to promote the diffusion of Agricultural knowledge, that a very old regulation prescribes attendance on agricultural lectures as a necessary branch of study to the established clergy of Holland.† And though in that as in many other countries, men of the old school at present act as a drag on the progress of scientific agriculture, yet enlightened and zealous men are at work in various parts of the Netherlands, and advance is gradually being made. The name of Mulder ought especially to be mentioned as most eminent among the scientific men of Holland, not only in advancing pure science, but in advocating and promoting its general applications to the agriculture of his native country.

ITALY.—From Holland turn for a moment to Italy, in which country drainage works somewhat akin to those of the Dutch, form the proudest monuments of which even that famed land can boast, of the victory which persevering intelligence can achieve over the difficulties and seeming hostility of nature.

Did time permit, I might present to you a most interesting historical sketch of the changes in agricultural condition and capability which that country has undergone from the period of the ancient Etrurians to the present day. And to the man of science, such a sketch would be the more interesting, from the circumstance that in all the changes that have taken place, the physical and geological structure of the country, has exercised a far more prominent and permanent influence, than either the remarkable industry and constructive skill of the Etruscan inhabitants, or the hostile incursions of its foreign invaders.

To the rich alluvial plains of Lombardy, of which rice, and Indian corn, and wheat and abundant milk, are the natural productions; and to Tuscany, in which something of the ancient industry and persevering practical skill of the old Etrurians‡ still survives, the agricultural inquirer must proceed to see the bright side of Italian cultivation.

But it is in Tuscany chiefly that he will find the most interesting evidence of the conquering power of the living mind over the obstacles of physical nature. The Maremme of Tuscany and the marshes of the Val di Chiana, like the Campagna and the Pontine marshes of the Roman dominions, have long breathed forth that pestilential malaria which, like the summer exhalations of the sea islands and river mouths of your Southern states, carries on its wings fever and lingering ague and frequent death. It is one of the great modern triumphs of engineering skill, applied to the promotion of rural industry—second only to the gigantic labors of the Dutch, of which I have spoken, and to the artificial drainage of our English fens—that the terrors of the Maremme have in a measure been bridled in—that the Val di Chiana, in so far as it lies within the borders of Tuscany, has been drained and dried—and that cheerful health and rich crops prevail over large tracts of country, in which it used to be almost certain death to linger.

Among a Republican people, I, who owe allegiance to a constitutional Monarchy, may be permitted to name to you Leopold the First, of Tuscany, as the principal author of all this good. Whatever our opinions on other matters may be, we shall all, I am sure, agree in this, that those men are great and worthy to be honored, who having been gifted by God with large means and great opportunities, make use of those means and opportunities for the glory of God and the good of their fellow creatures—who, instead of war and scarcity, and suffering and death, promote peace and plenty, and health, and the multiplication and prolongation of human life—the moral lesson of whose life inculcates the truth that man's proudest triumphs are not those he achieves over his fellows, but those which he gains over himself, or by which he compels the unwilling powers of nature to minister to the material comforts of mankind—who encourages what will unite instead of distract, what will cement instead of divide the nations of the world—as that broad belt of water which laves alike the shores of your country and mine, instead of separating, as in former years, now binds us together more closely than if the same continent contained us.

As the promoter of such ends for twenty-five long years in his country of Tuscany, the name of Leopold the First will not sound unpleasantly even in your republican ears.§

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* For a fuller account of the *Rural Industry and Drainage of Holland*, which I wrote for the Edinburgh Review, see vol. 86, p. 419 of that work.

† This must be considered an admirable provision, enabling the pastor to advise in regard to the temporal pursuits, no less than the spiritual affairs of his flock.

‡ To those who are desirous of obtaining the means of forming clear notions of the physical structure of Italy, of its climatic conditions in the times of the ancient Etrurians, and of the industrial skill as well as the social relations of this people, I venture to recommend a perusal of Denis's *Cities and Cemeteries of Etruria*.

§ For an account of the reign of Leopold, see Napier's Florentine History, vol. vi, and for a detail, with drawings, plans and maps, of the engineering operations by which the Maremme were dried, see

FLANDERS AND BELGIUM.—In Flanders, both Belgian and French, you are probably prepared for an admission on my part, of great agricultural skill and success. I am compelled, however, to confess my own impression to be, that a great portion of what has been written upon Flemish husbandry, partakes of the character of a romance.* The cultivators of Belgian Flanders have the merit of raising fair crops from certain tracts of poor and sandy soil, of husbanding and applying manures so as to keep such land in culture, and of skillfully varying their crops so as to prevent a premature exhaustion. But no knowledge of the general principles of agriculture is widely diffused among them. The improvement of wet and of heavy clay soils, except by open ditches, is almost unknown. Improved implements and thorough drainage, and modern modes of manuring, and some small instruction at least in the elements of science as applied to agriculture, have still to be introduced among them, before they can rank in general knowledge or in skilful practice with the farmers of Scotland or England.

And, indeed, in Belgium as in France, the progressive subdivision of property opposes a growing obstacle to that general amelioration of agricultural practice, which the wants of a numerous people, and the progress of knowledge demand. Where the average extent of properties and farms over a whole province is already reduced to about an English acre, we cannot look for the introduction of any of those improvements which demand the purchase of new or comparatively costly implements, the rearing and feeding of multitudes of stock, the employment of hired labor, or generally the application of capital to the land. As in Ireland, the subdivision or morcelling of the tillage farms, has already, in whole districts, been carried to the starvation limit. As into Ireland, the potato failure brought with it into Belgian Flanders, famine and disease, and large emigration,—and notwithstanding all that wise governments can do, it is to be feared that on the recurrence of similar visitations, similar social evils will in both countries again re-appear.

FRANCE.—In France I need hardly inform you that practical agriculture is far in arrear. In Normandy, the mixture of Teutonic blood has probably some connection with the superiority of the husbandry of this province as compared with most of the other parts of the kingdom. It is certain at least, that notwithstanding the many efforts made by persons in power to promote the introduction and adoption of better methods, the general farming of La Belle France advances with comparative slowness.

This country indeed presents another striking instance of the small connection which may exist between the existence of extensive means of agricultural instruction, provided by the central government, and the practical skill of the rural population.

In 1843 there existed in Frane one hundred and fifty-seven agricultural societies—six hundred and sixty-four agricultural committees—twenty-two model farms, some of which had schools attached to them—and fifteen schools and chairs of agriculture and agricultural penitentiaries. In the early part of 1849, under the auspices of the republican government, and as part of the plan of M. Fouret, then Minister of Agriculture, twenty-one farming schools had already been opened—a national agricultural university was about to be established on the farms in the little park of Versailles, and a hundred and twenty-two agricultural societies, and three hundred minor institutions, had participated in the funds voted for the encouragement of Agriculture.

Though it is unquestionable that a country may attain a high rank in agriculture without the aid of formal agricultural schools—provided, as in Scotland, other early mental training is placed within the easy reach of the rural population—and that in spite of numerous schools, if other obstacles intervene, the cultivators of a country may lag far behind;—yet both common sense and experience show that of two nations of the same blood, placed otherwise in the same circumstances, the one which teaches the principles of agriculture in its schools, will exhibit the most productive harvests on its fields; and that as in England and Scotland now, a time will come in the agricultural history of every country, when old means and methods will fail to maintain the rural community in a flourishing condition, and when every new means of fertility which advancing knowledge can supply, must be made generally known, and become generally employed. Such are the simplest and most common sense arguments in favor of agricultural teaching—the inutility of which might be argued with some show of reason, from the comparatively small progress yet visible among the fields and farmers of France and Bavaria.

The agricultural statistics of France, which the government has collected and published in great detail, would supply many interesting subjects of reflection, were I at liberty to dwell longer on this part of Europe. I may only mention—as pregnant with thought and instruction in regard to the condition, the food, and the general mode of living of the rural classes of France—the fact, that the number of conscripts who are rejected on account of deficient health, strength and stature, is constantly on the increase; that forty per cent are turned back from this cause; and that though since 1789 the standard has been three times reduced, as large a proportion of the conscripts is below the required height, (now five feet two inches,) as ever.—Rubichon. Such facts as this show how closely the discussion of agriculture is connected with that of the most profound social evils.

SWITZERLAND.—To Switzerland, I only allude as one of those countries in which the influence of natural intelligence and a fair share of early instruction, has been brought to bear most successfully on the improvement of the soil, and especially of the breeds of stock which are best adapted to its peculiar dairy husbandry. Those advances which require the application of capital and science, such as thorough draining and special manuring, are there, however, still unmade; and it will probably be many years, before, in these respects, the cultivators of the Swiss valleys and mountain slopes, can closely imitate the present improved practices of the British Islands.

SPAIN.—The agricultural condition of Spain suggests melancholy reflections. The central table lands of this country* are reckoned among the first wheat growing districts in the world. The culture is rude and imperfect. The soil is scratched with a primitive plow, and is seldom manured, yet the returns are said to be prodigious, and the quality of the grain excellent. But where nature does much, man too often contents himself with doing little. Amid all this plenty, the peasant is miserable. He lives in a cabin of baked mud, or in burrows scooped out from the friable hillocks, ignorant of the luxury of furniture, and barely possessing the necessaries of life. The want of roads and of means of easy transport, makes his produce almost worthless, so that a comparatively spare population exists, and much wretchedness in the centre of fertile fields and a land abundant in corn.

We sometimes think ourselves unfortunate to have been born, or to be doomed to live where clouded suns impart a lessened light and heat; or where the frosts of winter bind up for many months the hardened earth. Yet in such climes, man more really lives, and exercises a truer dominion over inanimate things, than where tropical skies appear to prepare for him an unceasing enjoyment. Where mind and mental energy are dormant, he only vegetates or exercises his brute passions. Where by perpetual struggles he subdues the adverse elements, bends circumstances to his will, forces a copious abundance from an unwilling soil and in spite of inclement seasons—there he most truly lives, and amidst his hardships enjoys life most; there refreshing sleep visits him with her balmiest breath, and in the power of mind over matter, which his success displays, he brings out more clearly the claim of man to a likeness with Him who is all mind, and to whose slightest intimation all matter bends.

GREAT BRITAIN.—In striking contrast to the case of Spain, is the agriculture of the Island in which I was born, and from which so many of your forefathers have come. I need not tell you of our uncertain climate—our fickle sky, our frequent rains, our late frosts in spring, our early frosts in autumn, the cold winds and temperate suns of our most favoring summer, the mists and fogs that settle over us at every season of the year. I only remind you of these things, and ask you to contrast with them the large crops we can reap, the high rents we can pay, the poor lands we have enriched, the local climate we have ameliorated, the wide wastes we have subdued beneath the plow, the northern districts we have tamed down to the production of wheat, the large population we have reared, and in ordinary seasons are still able to feed, and—amid all the croakings and complaints of individuals and classes—the vast amount of material comfort and of intellectual elevation which the island exhibits. How much kinder, on the whole, the Deity has really been to us than to prolific and sunny Spain; how much better our fortunes as a people, how much happier our individual lot!

PRACTICAL IMPROVEMENTS IN GREAT BRITAIN.—Among the greatest of those practical improvements *in the treatment of the land*, by means of which British agriculture has been advanced to its present condition, I may mention:

1st. *The alternate husbandry*—a judicious rotation of crops. In this walk Flanders was probably the earliest among modern European countries to make decided and important advances.

2d. *The introduction of thorough drainage.*—To a certain extent and in a certain way, under drains have been made in almost every country of Europe, and are at least as old as the time of the Romans. But the necessity and almost universal profit of the system as it is now understood and practiced, was first demonstrated in Scotland, and owes its general introduction to Mr. Smith, of Deanston.

3d. As the complement of thorough drainage, the introduction of *deep and sub-soil plowing*. These practices have renovated shallow worn out soils, by bringing up new materials; have opened a passage for the roots to descend deeper in search of food; and have provided a more ready outlet of surface water into the drains below.

4th. *The judicious and continued application of Lime*—according to principles now beginning to be generally understood. When applied without the requisite knowledge, or without regard to future consequences, the use of lime has been, and will still be, one of the most ready means of exhausting the most fertile soils.

5th. *The use of Bones*—in various forms, as an application to land in various conditions, and for the growth of various crops.

6th. Generally, what is called *high farming*, comprehending:

a. The culture of green crops extensively.

b. The making of rich home, and the purchase of valuable foreign manures of various kinds to a great extent.

c. The rearing and feeding of improved breeds of stock, for the conversion of one form of produce into another, which meets with a readier market, or is otherwise more profitable.

d. The custom of *full feeding*, both for plants and animals, from early youth to full maturity.

It is the characteristic of this kind of farming, that it spares no reasonable expense—in implements, in manures, in labor—as all experience has shown that a liberal treatment of the land, makes the land liberal in return; and that to the stingy farmer, the land is most niggard of her crops.

7th. *The introduction of lighter and better contrived implements*, of machines to economise labor, and of horses having a quicker step.

Such are generally the practical methods or processes by which British agriculture has been advanced to its present condition.

Memorie sui Bonificamente delle Maremme Tuscane, by Fernando Tarlini. Florence, 1838.

* *L'Agriculture Pratique de la Flandre*, par M. J. L. Van Aelbroeck, Paris, 1830; and *Memoire sur L'Agriculture de la Flandre Francaise et sur l'Economie Rurale*, par J. Cordier, Paris, 1833.

* The two elevated plains of New and Old Castile, and that of La Mancha, separated from each other by the granites and metamorphic rocks of the Sierra Nevada, are composed of a white limestone, occasionally covered with the drift of other rocks. These plains are burned up in summer, so as to yield no grass till the October rains fall, but they yield magnificent crops of wheat. (Sir E. Head.)

In connection with this improved condition of British agriculture, and the practices it involves, you will excuse me if I advert for a moment to one aspect in which British agriculture may be regarded, which at the present moment is most vitally connected with the interests of the English farmer, and may be neither uninteresting nor uninstructive to you.

Were an intellectual foreigner, previously unacquainted with Great Britain, with the character of its people, or with its social condition, to be informed regarding this country, that though occupying only a small and thickly peopled corner of Europe, shrouded for many months of the year in fogs and mists, seldom and briefly visited by the fervid sun—never, I may say, by such a sun as now shines upon us—and raising its own grain crops with cost and difficulty to feed its rapidly increasing inhabitants—were he to be told that the Legislature of this country, in which the agricultural body is the predominating interest, had thrown open its island harbors to all comers, and trusting to superior energy, perseverance and skill, had invited even the most fertile and favored regions of the globe to a free competition in their own grain markets, fearless of the results;—apart from all fiscal theories or political views with which my profession and pursuits forbid me to intermeddle, I ask you, if such a foreigner, so instructed, could fail to admire the open boldness, to look with respect on the resoluteness of such a country, or to long for an opportunity to study, not only the character and habits of its people, but the modes of culture practiced by them, with so much success, in a region so unfavored by nature.

And were he actually to come among us, it would be easy for him having started from the Land's end, to proceed from one warm hearted and hospitable farmer to another, till the Pentland Firth arrested his course, and all his journey long he might converse with cultivators of ardent minds, full of practical and general knowledge, who in most unpromising circumstances refuse to despond, and while they see so much every where around them awaiting the hand of the improver, will not let slip the anchor of hope; who differing widely, perhaps, in politics, and as to the policy of certain fiscal regulations, yet feel alike that to resolute men the conquest of the stubborn land is as sure as the dominion of the sea; that new difficulties only demand new exertions and that new energies are equal to meet new emergencies.

On quitting the British shores, after such a tour, that foreigner would carry with him a true impression of the flower of English and Scottish Agriculturists, and his first admiration of the resolute firmness, and his estimate of the skill of the island farmers, would be confirmed and strengthened by his actual survey.*

In other parts of the world I might fear lest my audience should accuse me of over exalting, by such language as this, the character of my own country and its people. You, who feel so just a pride in the noble land you possess, will know how to make allowance for my pride in mine. But indeed whatever can be truly said of British farmers, may, I begin to feel, already be said, with almost equal truth, of the farmers of your Northern states. Of the west and south, I cannot as yet, from personal observation, speak. In Nova Scotia and New Brunswick, two younger provinces, I have seen a picture of what Maine and New Hampshire, and Massachusetts especially, have been; and in the gradual conquest which persevering labor has in these states achieved over drifted rocks and hungry gravels, and sandy barrens and ungenial swamps, I discover the resolute spirit still living of those men who centuries ago, dared to cross a then wide and little known sea, in search of new and freer homes, and whose descendants now till alike the soils of the Old England and the New. Time has not impaired the energy and enterprise of either; I believe I may say it has left their hearts unchanged too.

And now you are ready to ask me, what those, who in Europe are most in advance in the practice of the rural arts, look forward to as likely to help on agriculture still further. In what especially, you will inquire, do we of Great Britain trust, who have thrown down the gauntlet to the farmers of the world? These questions I shall answer by drawing your attention briefly, to what may be regarded as the characteristic or living feature of the agriculture of our time—what you no doubt expect me briefly to speak of, the direct applications, namely, of natural science to the several branches of rural economy.

The main purposes for which natural science is applied to rural economy, are—

First. To explain the reasons of practices already adopted, or of things already observed, and to supplant old and defective by new and better usages.

Second. To establish general principles, by means of which, a short cut is provided for the unlearned, to the knowledge, practical and theoretical, we already possess. A single principle explains and thus recommends or forbids many practices, according to the circumstances of the soil, place, or season.

Third. To enlarge our actual knowledge by new discoveries susceptible of practical application.

On these several objects of natural science, in its application to agriculture, it would be out of place at present to dilate. It will be sufficient if I briefly draw your attention to some of the general results, in reference to rural economy, at which science has already arrived.

With this view I might draw my illustrations from any one of the many different branches of natural knowledge. I might select for example:—

1st. The general relations of *Physical Geography* to the art of culture—such as

a. The influence of broad seas and of great lakes and rivers, of tides, of sea currents, and of prevailing winds, on the capabilities of a country, and the practices and profits of its cultivators.

b. The influence of mountain elevations and depressions, of high table lands and of low level plains—or

2d. The general indications of *Geology* in regard to the fertility of a country, the branches of husbandry to which it is best adapted, and the means by which its fertility may be best promoted.

The Geological Map of this State, and the volumes of the Natural History Survey, afford abundant illustrations of this science to practical agriculture—or

3d. The relations of *Meteorology* and *Botany* conjoined—such as

a. The adaptation of certain plants to certain climates—of sugar, cotton and rice to warmer; of buckwheat, and Indian corn and wheat, to warmer and drier; of rye, barley and oats, to colder and more uncertain climates.

b. The nature of rust, smut, mildew, the maize brand, &c., and the circumstances of local climate most favorable to their appearance—or

4th. The relations of *Geology* and *Vegetable Structure* conjoined—such as

That certain plants and soils are mutually adapted to each other, because of the special structure and natural habits of the plants, and the physical characters only of the soils.

The valley of the Mohawk, for example, is remarkably prolific in Indian corn, and raises comparatively little wheat—while the district of Syracuse produces wheat abundantly, and is less favorable to corn. So in Great Britain and Ireland, we have our turnep and barley soils, distinguishable readily by the practical man, from the wheat and clover soils. These differences are independent of chemical composition, and are not to be explained upon chemical principles. They are dependant upon the special relation which the structure and natural habits of the plants bear to the physical characters of the medium in which their roots are made to grow—or

5th. The general indications of *Geology* and *Meteorology* conjoined—such as

The relations of the nature of the rocks, of the soil, and of the fall of rain taken together—

a. To the necessity for under drainage, and the means of effecting.

b. To the necessity for artificial irrigation, and the easiest mode of obtaining a supply of water for the purpose—or

6th. The general relations of *Zoology* and *Animal Physiology*.

a. To breeds of domestic animals, and to the preservation of their purity.

b. To the rearing, feeding and general tending of stock.

c. To the agency of animal life in fertilizing the soil.

d. To the attacks of insects upon our cultivated crops—or

7th. The general indications of *Chemistry*—such as

a. That a fertile soil, in addition to various organic compounds, contains at least eleven different mineral substances.

b. That plants contain, usually, or in most of their parts, the greater number of the same mineral substances.

c That the animal, as a whole, also contains them, but distributed throughout its several parts in a manner different from that in which they are found, either in the plant or in the soil.

d. That the plant standing, as it were, between the soil and the animal, prepares for the latter both its organic and its mineral food.

e. That an intimate and beautiful relation exists between the soil, the plant and the animal—or between the living and the dead things of nature—or

8th. The general indications of *Geology and Chemistry* conjoined—such as

a. That certain Geological formations are especially rich in some of the mineral substances found in and required by plants, and produce soils which with special treatment will prove fertile and profitable to the cultivator.

b. That others are especially defective in some of these substances, and form soils which are naturally unproductive.

c. That some abound in all the kinds of mineral matter which plants require, and yet yield soils which are naturally unfertile.

I. RELATIONS OF GEOLOGY TO AGRICULTURE.

From any one of these general topics, I might select beautiful examples of the close bearings of science upon profitable farming—but time does not permit me to illustrate in detail any one of the general relations to which I have referred. A few observations, however, in reference to the special applications of Geology and Chemistry, will neither detain us long, nor prove, I believe, generally uninteresting.

In reference to Geology, I could have wished to point out to you the very close economical connection which recent discoveries have established between practical geology and practical agriculture—how the manufacture and abundance of valuable manures, for example, is actually dependant on the progress of geological discovery. I must be content, however, with a brief allusion to the geology of the United States.

There are few countries, indeed, which more clearly than your own, show the relations which geology bears to agriculture in all its branches. Your wide prairies are naturally distinguished from your vast forest lands, by the character of their soils, and these again by the geological structure of the regions over which they extend, and from which they are generally derived. The broad treeless zone of calcareous marl, or rotten limestone—called the prairie or cane brake country—which crosses Alabama in an east and west direction,* owes its natural nakedness to the dry, waterless, chalky deposits, which for a depth of hundreds of feet form the uppermost rocks of the country; and the tenacious, soapy, unctuous quality of the soils, with which the carriage wheels of travellers in that State, in wet weather, become familiar, is owing to the same cause.

So your zones of differing timber, as you ascend from the alluvial

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* For two recent estimates of the condition of Agriculture in Great Britain, see—

Weecherlin. *Ueber Englische Land-wirthschaft und deren Anwendung auf Land-wirthschaftliche Verhaltnisse insbesondere Deutchlands. Stuttgard and Tubingen*, 1845. And

Colman's *British Agriculture*. London and Boston, 1848.

* Lyell's Second Visit to the United States, pp. 42, 89.

swamps of the shores in your southern states, across the eocene and cretaceous beds to the mica slate, gneiss and granite of the Appalachian chain, are the consequences and indications of diversities in geological structure. The swamp willow, the cypresses, (*thyoides* and *disticha*) the swamp hickory, the green palmetto, the tall magnolia, the red maple, and the cotton wood of the lowest swampy spot—the hickory, oak, magnolia, beech, walnut, tulip tree, and holly, of the dry, alluvial bluffs—the perpetual pines of the tertiary (eocene) sands—the naked prairie of the cretaceous marls—and the mixed oaks, hickory and pines which appear on the primary rocks—all these zones of different timber indicate the natural connection of the vegetation of a district with the nature of the rocks on which it rests.

Nor are these geological relations of vegetable life without their influence on the daily movements of your shifting population. I have elsewhere shown how directly the movements, the natural expansion I may call it, of our first class farmers in Scotland, is not only influenced but actually, as it were, prescribed, by the geological character of the district in which they have been brought up and to which they intend to move.* So it is among you. "Those who go southwards from Virginia to North and South Carolina, and thence to Georgia and Alabama follow, as by instinct, the corresponding zones of country. The inhabitants of the red soil of the granitic region keep to their oak and hickory; the 'crackers' of the tertiary pine barrens, to their light wood; and those who inhabit the newest geological formations in the sea islands, to their fish and oysters."†

And to this illustration of a fact, which may be proved, I believe, by observtion in every country of the globe, Sir Charles Lyell, adds a sentence, from which I am sure you will at once draw an important, practical lesson. "On reaching Texas, all these different classes are at fault, because the cretaceous strata in that country consist of a hard, compact, siliceous limestone, which defies the decomposing action of the atmosphere, and forms table lands of bare rock, entirely unlike the marls, clay and sand, of the same age, in Alabama."

The tillers of the red land, of the pine barrens, of the marshy prairies, and of the sea island swamps, are equally at a loss when they migrate to a country of which the soils and surface differ from all they have left. And how is this? Because they have no familiarity with those general principles of chemical science on which all culture on all soils depends—because, if they wish to continue the same kind of tillage, and on soils similar to those they have left, they have not such a knowledge of the general principles of Geology as would enable them at once to say, to this or to that country, I must go, for there alone am I likely to find them.

In my own country, I have been accustomed to press upon the agricultural community the importance of such geological knowledge to them, because of the numerous colonies we possess in all parts of the world, and because of the swarms of emigrants we yearly send off to subdue and people them.‡ But to you whom I now address, who already occupy, or in connection with kindred blood are destined to subdue and people nearly half a world—how much more important must such knowledge be! Your westward movement will continue for many generations, and how much surer will the way to wealth be to your hardy pioneers, if they have been taught in their early homes, not only only how to choose land, but where to look for the kind they wish to buy, and how to till it best, whatever it may be, when it has come into their possession.

I ought, perhaps, to apologise for saying so much on this subject. To you, who have expended so much public money and so large a measure of talent in developing the geological structure and natural resources of this and other states, it may appear presumptuous in me to urge further upon your attention, what you have shown that you already so fully appreciate. I may plead as an excuse, that in a country where all action originates, and all power centres in the masses, a brief discussion of the subject before a great meeting like this, may help new listeners towards a proper general estimation of the practical value of science—and that what I have said will not fail in being useful to scientific agriculture, if it convince a single undecided voter in this great commonwealth of the worth of those aids which science offers you, in developing the resources of the soil.

II. Relations of Chemistry to Agriculture.

Permit me now to say a few words on the subject of chemistry, in its relations to agriculture.

The special applications of this science, as many of you are already aware, are far too multiplied to admit even of enumeration. Of the practical ends which have been more or less perfectly attained by means of chemistry, I might mention such general ones as these:—

1st. In what *general* exhaustion consists, how it is produced, and how it may be repaired?

2d. In what *special* exhaustion consists, how it is brought about, either naturally or artificially, and how it is to be corrected?

3d. What plants, in general require to make them grow well?

4th. What manures ought to contain, to be generally serviceable; what, with a view to special purposes, they ought specially to contain: and how they are to be artificially prepared?

But such topics are too general and indefinite to make a sure impression on the mind of the practical farmer, in the brief moments I have spent in enumerating them.

I mention further, therefore, such special points as the following:—

1st. How to bring crops to earlier ripeness in late and elevated districts.

2d. How to reduce the straw producing tendency of the land.

3d. How to hasten or promote, or to push forward laggard, yellow, and stunted vegetation.

4th. How to strengthen the straw of your grass crops, where they are liable to be laid.

5th. How to fill the ear and make it larger, where long culture or natural poverty has reduced its size.

6th. How to improve the deficient feeding quality of turnep, and other root crops, when grown on mossy land.

7th. To quicken the organic matter in dead, deaf, or peaty soils, and make it available for the nourishment of plants.

8th. To prepare artificial manures, which shall nourish any crop on any available soil.

9th. To promote growth on *slow*, and to retard it on *quick* soils.

10th. On newly brought up subsoils, and on trenched land, what manures ought to be used, and why.

11th. Why a rotation of manures, as it is called by practical men, is necessary, and where.

12th. That the use of lime to a certain extent, and in a prudent way, is necessary to the highest fertility.

13th. That saline and nearly all other manures, do more good upon light and open, than they do upon stiff and close soils, and why.

14th. How to economise the consumption of vegetable food, and to adapt it to the purpose for which an animal is fed.

16th. How to prevent the disease called *fingers and toes* in turneps and other roots, and how to render mildew and ague equally rare.

To do these and many similar things economically, skilfully, and with more or less success, are among the practical ends to which chemical investigations have already led us.

They also supply answers to many practical questions, such as:—

1st. Why cabbage crops so greatly exhaust the soil, and how such exhaustion is to be repaired?

2nd. Why tares cut green exhaust the land, and give inferior wheat?

3d. Why tares are seldom good after crops of clover?

4th. Why lime produces a more marked effect on one soil than it does upon another?

5th. Why one variety of lime is more useful generally, or in particular districts on particular farms and fields, than another?

Of special points and questions, I could enumerate many more, in regard to which chemistry may be said to have been, or to be capable of becoming, of obvious money value to the farmer. Even to such of you, however, as have not much attended to this subject, the above examples will sufficiently indicate both the kind of connection which exists between practical agriculture and practical chemistry; and the kind of uses to which such scientific knowledge may hereafter be put, in advancing the important art, which it is the first wish of this great Society, and the individual interest of many of its members most zealously to promote.

Limits of Human Skill.—But in dwelling upon and illustrating what is already in the power of man, and what he hopes to attain in reference to agriculture through the aids of science, I would not forget to acknowledge how very limited his knowledge is, and how feeble his capacities after all.

A mysterious fungus attacks the potato, and for years spreads famine and misery, and discontent and depression, among millions of industrious farmers.

A minute fly, season after season, hovers over our wheat fields, and from entire provinces and states almost banishes the cultivation of our most important grain.

A long continued drouth, such as half a century past has scarcely seen, dries up our meadows and pastures, and drives the farmer to his wits end, to obtain winter sustenance for his necessary stock.

Such things as these ought to prevent us from boasting of our knowledge, and to enforce upon us that piety and humbleness of spirit which rural occupations themselves so naturally foster—while at the same time they should not restrain us from any effort or inquiry by which the evils themselves may be mitigated or removed.

It is possible—nay it is almost within the bounds of a reasonable expectation—that the same intellectual research which has given us dominion over the proud waves—has made out the laws by which hurricanes are regulated—has already almost freed us from their most fierce influences—and has forced the fiery lightning to descend harmlessly from heaven—that the same research may finally free us from the visitations of the fungus and the insect, and may place the dreary drouths of summer under reasonable control. Such hopes we may entertain, not as sources of pride, but as stimulants to exertion—for in so greatly rewarding the past exercises of our intellectual powers, the Deity obviously intends still further to excite us to study and extract good from the living and dead things of nature, over which he has given us a general dominion.

Obstacles to Progress.—There are, however, in every country, certain obstacles which oppose themselves to the progress of scientific agriculture, as a branch of knowledge, or to its practical application in the improvement of the soil.

I do not refer to those physical or local obstacles of climate, elevation above the sea, low prices, distance from markets, and so on; but to those social and class obstacles which, in so many places, and in so many ways, interfere not only with the rapid extension of our knowledge, but with the diffusion of what we already possess as to the application of science to the rural arts. I may enumerate as belonging to obstacles of this kind:

1st. The aversion to theory, as it is called, which is so generally professed by practical farmers in most countries of the world. Rash and hasty theorising in regard to agriculture, it is right to reject; the error lies in confounding with such theory every thing that does not appear to bear directly upon the more common operations of the farm—as if chemistry, or the chemist for example, could be of no use to the farmer, because he does not interfere with the handling of the plow—or with the shape and management of the drill machine, or the harrow.

2d. The small amount of talent hitherto in all countries considered necessary to fit a man to become an excellent farmer. This not only lowers the general education and attainments of the agricultural class, and the estimation in which they are held—but it unfits them,

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* See an article in the Edinburgh Review for March, 1849.

† Lyell's Second Visit to the United States, p. 110.

‡ See the Author's *Elements of Agricultural Chemistry and Geology, Fifth Edition*, p. 616.

as a body, readily to appreciate the labors, or to listen to the counsels of men of science, however prudent and practical they may be.

3d. The special deficiency, among all grades of the agricultural community, (in England among landlords, among tenants and among laborers,) of any instruction in the elementary parts of those branches of knowledge by which the principles of agriculture are especially illustrated.

4th. The extreme sub-division of the land, which you may not see in this country for many generations, but which already exists as a great evil in some of the countries of Europe. It prevents the use of improved implements, and therefore the encouragement of agricultural mechanics—because the farmer is too poor to buy anything but the merest necessaries. It prevents also the purchase of manures, natural or artificial, to any extent—the employment of paid labor in farming—and generally all those forms of improvement which demand an outlay of capital, or to which the occupation of a considerable breadth of land is a necessary pre-requisite.

5th. An obstacle peculiar to your country, and to its present transition state—and it is really a serious obstacle to improvement—is the feeble local attachment by which the proprietors of the more newly settled districts are bound to their farms. This appears in the fact that so many of your farms are for sale. Few families have yet become so attached to their locations as to be unwilling to sell them, if a fair offer be made. The head of the family trusts to his own skill to do better elsewhere for all his household, with the money for which they may be sold. This state of things will pass away as age creeps over your commonwealths and institutions, but in the meantime it operates as a serious hindrance to the expenditure of money in embellishment or in costly improvements, which might possibly not enhance, in a proportionate degree, the value of these properties in the market.

I merely mention these social obstacles, for although some of them do, as I am informed, exist to a certain extent in this State of New York, yet I would rather express my high opinion of the much good I have found among you, than appear to detract from your just deserts, by discovering and commenting upon wants and defects which in your hurry to get forward, you have as yet scarcely had time to discover, much less to supply or remove.

ENCOURAGEMENT TO AGRICULTURAL SCIENCE IN THE UNITED STATES.—Of the good I see, for example, I may specify the enlightened desire exhibited by your several *State governments*, to promote the applications of science to your home agriculture, as it is strikingly shown in the numerous surveys and reports which they have caused to be made and published, in respect to the geology and agricultural capabilities of the several parts of the Union. In this respect your State of New York occupies a most distinguished position, and its inhabitants will no doubt reap from their well directed exertions, a rich harvest of deserved fruit.

Again—this great Agricultural Fair, the implements and stock here exhibited, the countless numbers who have entered the show yard to see them, and who now surround us—impress upon a foreign visitor, the obvious usefulness and efficient management of your Agricultural Societies, how much they are doing, and how zealously they are supported. To those at a distance, who cannot look upon you with their own eyes, your annual publications speak. I have myself been both interested and instructed by the former volumes of the Transactions of your Society, and I have heard them, in a public meeting in Scotland, most highly spoken of, and favorably contrasted with the published proceedings, even of the Highland and Agricultural Society of Scotland. It gives me pleasure to express my opinion, that the volume for the present year is not only equal to its predecessors, but contains matter highly creditable to the Society, and useful to the advancement of scientific agriculture.

Farther—The interest which, as individuals, you take in the promotion of agriculture, by the acquisition and application of new knowledge, may be gathered from two circumstances—*first*, from the establishment and liberal endowment of chairs of science in connection with agriculture, by private parties, in two, at least, of your state universities—a liberality at once most patriotic and most judiciously applied; and *second*, from the causes which led to the recent visit to Europe of your countryman, Mr. COLMAN. Him we were led to look upon as a deputy from the individual farmers of this and the adjoining states, to the farmers and agricultural assemblies of Great Britain—for it was your individual encouragement and subscriptions, I believe, and those of your societies, which induced and enabled him to come among us. As your deputy, he was every where received—every where kindly, I believe, as so kind-hearted a man deserved to be—and every where with a desire to give him the fullest information on every subject that might be useful to you.

Gentlemen, in the minds of some of your countrymen whom I have met, not so I hope in yours, a wrong impression exists as to the feelings of my countrymen towards you as a community, or as individuals. We do not envy or regret your rapid growth and prosperity as a people—we are proud of it. We do not dislike you individually—we are predisposed, rather, to see good in you and to like you. Whatever sour men on either side of the water may say, you may rest assured that there is a corner in almost every heart at home, which especially warms towards the North American, whether from the Colonies or from the States, and a warm seat at many a fire side, if he will come and occupy it. It may be old fashioned, gentlemen, but we all still think at home that blood is thicker than water, and if any of you doubt it, we beg you, like Mr. COLMAN, to come among us, and honestly and frankly to try whether it is so or not.

If I were asked to give a special reason why a knowledge of the scientific principles of agriculture is more necessary among you than among any other existing people, I would mention the great extent of your territorial dominion, and the varied soils, climates and cultures, which your people encounter, as your dominion over the forest and prairies extends. When you take this fact in connection with an other, which is no less familiar to you, that a general set of your population, like a great moving tide, is carrying them towards the south and west—so that the old tillage and crops of one year are often deserted by the mover for a new form of tillage, and the culture of new crops in the next—you will see how useful to the shifting agriculturist himself it must be, and how beneficial to the whole community, that he should possess some degree of familiarity with those principles, not only of Geology to which I have already made especial allusion, but of Chemistry and Botany also, which shall enable him in whatever circumstances of soil, of climate or of tillage he is placed, to make the most of the advantages he happens to possess—to overcome most easily and most economically the difficulties he may have to encounter—and to employ at once his head and hands with skill in bettering his local condition.

As an agricultural people, you possess many advantages over the nations of Europe. You are not old enough to have acquired district and state prejudices, which are difficult to overcome, and which in many parts of Europe, long oppose, successfully, the importation of improvements from abroad.

I may mention, as a most intelligible illustration, the introduction of implements imported from other countries, which in Europe is a very slow process. The swing plow of Scotland, for example, has made its way into many districts of England, has been extensively introduced into some parts of France, Holland, Sweden, and even into Poland and Russia. But into Germany, where attachment to the old tools and methods is so very strong, it makes its way very tardily. And I advert to this instrument—this fundamental instrument, I may call it, of the practical farmer—because I find it mentioned to your credit, by a German writer, that the swing plough has had a much more willing and ready reception among you than among his own countrymen, and that Germany has already received many excellent swing plows from America.* I have seen plow irons of Scottish manufacture, in use in various parts of North America. It is said that plow irons in considerable quantities are now exported from the States in considerable numbers to England.

Whatever is good in other countries, you are very much in a condition to adopt at once. You have, as I have said, fewer old forms to break through, old methods to abandon, old tools to lay aside, and old rules and regulations to abolish. Above all, as proprietors, you work every man for himself and for the profit of his family. Not only are feudal superiorities, servitudes, seridom and tithes, unknown among you, but even rents are not, as with us, to be made up on two dark days of every year. What ought to stand in the way then of your rapid progress in this most important art?

Another great advantage possessed by the agriculturists of this country, you will both understand and estimate. As a nation you commence your agricultural career at the point which we have attained. The eminence which we have reached after long climbing, you start from. You have the benefit of all our knowledge and experience, and—unwearied with previous labor, or satisfied with the idea, as too many of our farmers are, that you have already done very much—you must progress beyond what we have at present attained to. And with the intellect and energy you inherit, you must and will progress. It cannot fail indeed to prove a great blessing to mankind at large, that so many new minds, unfettered by old restraints of prejudice or partial legislation, or conventional custom, are now directed in this country towards the varied arts of social life. Especially must intellectual exertion on your part, in reference to any of the arts of life, benefit us in Great Britain—whom a common parentage, individual ties of blood, and a unity of speech, connect, and whom now the broad Atlantic, more than bridged over, almost brings together again into a common home. What you think, reacts upon our thoughts; what you speak, insensibly affects our speech; and your literature and ours, are read and have their influence in both countries. What each discovers sooner becomes property of the other, than in the case of nations who speak different tongues; and a step in advance on either side of the Atlantic, carries the arts of the other side along with it. We are not selfish—perhaps I might say we are eminently unselfish—in wishing you to become agricultural improvers. But of all the arts, it may be said more truly of agriculture than of any other, that it is of no country The producer of the common staff of human life, ought in all its perfection, to be the common property of all. In rivaling each other in our endeavors to push forward this highest art of life Britain and America will be striving only which can do most for the human race. And if we in Britain should benefit hereafter by the advances you are destined to make,—beyond what you have obtained from us,—it will enable us only the more speedily to aid in diffusing a knowledge of these advances among the other nations of the globe.

What is the moral of this discourse—what its immediate application to you whom I have the honor to address?

Is there improvement any where—let it be seen among you. Is there agricultural progress any where—you ought not to stand still. Are there means of bettering the mode of culture any where—you possess the same. Is there greater knowledge any where—it is within your reach. Is there energy and determination any where—these qualities are inherited in as great strength by you as by any other people. Is the climate favorable any where for special kinds of culture—you possess all climates, and may take a leaf from the farming book of every country. Is knowledge necessary anywhere—it is so among you; if not because of an over-crowded, yet because of a constantly moving, and at present rather retrograde agricultural population.

And if in consequence of its progressive tendency, the Teuton blood of the Anglo Saxon shade, is destined, as some believe, to conquer and possess this vast continent from sea to sea; it is surely the wish and purpose of the Deity, that such possession should be made a source of happiness both to the ruling and to the ruled, and a means of furthering at the same time, that general advancement of the human race which all philanthropists so ardently anticipate.

**Ueber Englische Landwirthschaft von A. von Weckherlin.* Stuttgard, 1845. p. 81.

But this conjoined happiness and progression demand the constant aids of augmenting knowledge. In your western migrations, you must bear with you, to plant on your new soil, the arts and sciences and daily discoveries of the east; and thus will population and civilization extend together to the shores of the wide Pacific.

And among the branches of knowledge which you will most usefully carry with you, those which relate to the arts of rural life, will, above all others, contribute largely to the temporal welfare of your spreading people. That which we know in England, you soon learn to master and apply here; and what is known in the Empire State, ought, in like manner, to diffuse itself hence over the vast dominions of your great confederacy

Though I have considered it my duty, in conformity with your request, to lay before you the observations I have put together in the present address—it would be presumptuous in me, after what I have seen in this show-yard, and in this city, to suppose that any thing I could say, would materially hasten the progress of agriculture among you, or turn you into any better paths than those you have already begun to follow. If any man wishes an evidence of what you are in energy, and what you are capable of in action, let him come to Syracuse, and look around him. It was brought as an action against the ancient Romans, that they made a country desolate, and called that peace. It is the nobler praise of the great modern Republic, that you find a country desolate, and cover it with people—a wilderness, and you plant it with fertile farms—furnished with rare wigwam encampments, and you strew it over with splendid palaces and great cities. Energy, discernment, constructive talent and administrative skill, must all be united to accomplish such results, so rapidly, so safely, so securely. I thank you for inviting me to come among you, that I might see all this, and might enjoy the gratification which the sight of progress of such a kind imparts. It will be to me a source of future satisfaction, if I shall be able, on reflection, to believe that my visit to your country has in any way contributed to the further or more safe advancement among you of that pursuit, which is the surest support of nations—whether in the Old World or in the New

New-York State Agricultural Society.

Annual Meeting.

The New-York State Ag. Society convened in the Assembly Chamber, at 12 o'clock on Wednesday, the 16th Jan., 1850—the President not having arrived, on motion of B. P. JOHNSON, Esq., Hon. JOHN P. BEEKMAN, ex-president, was called to the chair.

B. P. JOHNSON, Esq., Secretary of the Society, read the annual report of the Executive Committee, detailing the operations of the Board for the past year, which was listened to with great interest. Their labors have been, in every respect, eminently successful, and it is believed that the influence and usefulness of the society is rapidly extending, not only over our own state, but to most of the other states.

The report, on motion of Mr. CHEEVER, was accepted, and ordered to be embodied in the Transactions of the Society.

L. TUCKER, the Treasurer of the Society, read his annual report, showing these general results:—

RECEIPTS.

Bal. in the treasury, Jan. 17, 1849,.....	$433 55
Sale of mortgage given for money previously loaned,....	2,000 00
From the State Treasury,.....	883 23
For memberships at annual meeting,.....	97 00
Interest on investments,.....	250 00
Temporary loan, ...	593 61
Receipts at State Fair at Syracuse, ...	8,144 55
John A. Taintor, Hartford, Conn., for extra prize on Sheep,	100 00
Sundry other sums, amounting to	72 50
	$12,674 44

PAYMENTS.

Debts of 1848,.....	$2,037 15
Premiums.	4,397 66
Salary and travelling expenses of the Secretary, and salary of Messenger, ...	1,410 88
Expenses connected with the State Fair, ...	792 79
Repayment of loan,.....	600 00
On account of Library and Museum—Repairs of Agricultural Rooms—Incidental Expenses, &c., &c.,.....	1,334 66
	10.573 14
Balance in Treasury, Jan. 16, 1850, ...	2,101 30
	$12.674 44

On motion of Mr. ENOS, the report was accepted, and ordered to be printed with the Transactions.

On motion of Mr. T. C. PETERS. it was ordered that a committee of three from each judicial district be appointed, to report the names of officers of the Society, and to recommend the place for holding the next Annual Fair.

On motion of Mr. T. SMITH, the delegations from each judicial district, were directed to select their respective members of the committee.

The several district delegations then retired to select their committees, which duty having been performed, and the names reported, the nominations were confirmed.

Mr. PARDEE, before this committee, desired to present a resolution in accordance with instructions from his county, urging that two fairs be held next year—the State to be divided into two districts with reference to them. He stated that the county Society of Wayne had adopted this plan, and with great advantage, and desired to see the same thing by the State Society—and chiefly because the tendency would be to keep up the interest in these fairs, by holding them every year both in the eastern and western parts of this state.

Mr. CHEEVER suggested that this could not be done without an alteration of the Society's constitution—and perhaps the assent of the Legislature. It would also be equivalent to dividing the Society into two. But, in any event, it was a matter with which the committee just appointed had nothing to do, unless the Society had the power thus to divide itself, and should do so. If that was done, the committee should know it before acting.

Mr. PARDEE explained that the proposition was not to divide the Society, or to have two organizations—but on the contrary, that its union should be continued, and that under one organization two fairs should be held each year.

Gen. VEILE moved a reference of the matter to the committee just appointed.

Mr. SHERWOOD suggested a special committee—it being a matter of considerable interest at the west.

Mr. T. C. PETERS moved to lay the whole subject on the table, which was agreed to.

Recess until 4 o'clock, P. M.

Four o'clock, P. M.

Mr. ENOS, of Madison, from the nominating committee, reported the following persons as officers of the Society for the present year, and they were unanimously agreed to, by ballot, by the Society:—

President—E. P. PRENTICE, Albany

Vice Presidents—AMEROSE STEVENS, New-York; LEWIS G MORRIS, Westchester; ANTHONY VAN BERGEN, Greene; Z. C. PLATT, Clinton; J. B. BURNET, Onondaga; E. C. FROST, Chemung; OLIVER PHELPS, Ontario; NELSON VAN NESS, Chautauque.

Corresponding Secretary—B. P. Johnson.

Recording Secretary—J. McD. McIntyre.

Treasurer—Luther Tucker.

Executive Committee—B. B. Kirtland, J. J. Viele. H. Wendell, A. Thompson, Henry Wager.

The same committee, to whom was also referred the question of selecting a suitable place for holding the next Cattle Show and Fair of the Society, reported in favor of holding it at Albany, if the citizens furnish funds sufficient to erect such buildings, &c., as the executive committee may require for the purpose of the Society.

Mr. BUTTERFIELD's resolution relative to holding a four days' fair, was referred to the executive committee.

A communication was then read from JAMES COWDEN, Esq., American Consul at Glasgow, informing the Society of a fair to be held in London, for the exhibition of the industry and arts of all nations, during the summer of 1851. and expressing the hope

that American arts, manufactures, &c., &c., would be well represented.

Also, a resolution by Mr. JOHNSON, inviting the agriculturists, manufacturers, mechanics, &c., to prepare for the exhibition, and offering the aid of the Society, so far as their powers extended, to facilitate those who might be desirous of competing at the exhibition.

Mr. PETERS suggested that this Society send to the said fair all the various samples of Indian corn raised in this country.

Mr. BALDWIN hoped the Society would not confine itself to the samples of Indian corn raised in the country, but send other articles to this great gathering of nations. He hoped, not only that articles would be sent, but that the Society itself would be represented there. He spoke of this as being the first meeting to which the mother country had invited us, and trusted all parts of the Union, especially the Empire State, might be well represented on this great and glorious occasion.

A motion was made to refer the subject to a select committee, but was subsequently withdrawn, and the entire matter, toge her with a resolution by Mr. BUTTERFIELD, recommending to the executive committee to offer a premium of $100 on such article as takes a premium at said fair, was,

On motion of Mr. FOOTE, referred to the executive committee with power.

A communication was received from Dr. LEE, of the Washington Agricultural Rooms, in relation to distributing agricultural tracts. Referred to the executive committee.

Mr. PETERS offered a resolution, directing the executive committee to ask of the Legislature, in addition to their annual appropriation, the sum of $250 for improving the library of the Society, and $150 for the Museum. Adopted.

Mr. SMITH offered a resolution directing this Society to memorialize Congress for the establishment of an Agricultural Bureau.

The resolution was ably sustained by Mr. BALDWIN, and adopted.

Mr. CHEEVER gave notice of a resolution to amend the Constitution of the Society in such a manner as to retain ex-officio Presidents of the Society upon the executive committee.

Upon this announcement of a notice, a protracted debate sprung up, and was continued until the adjournment.

The Society again convened at the Capitol in the evening, and listened to an excellent lecture by Prof. JOHNSTON, on the connection of Chemistry with Practical Agriculture.

Thursday, Jan. 17.—The Society met at their Rooms, at 10 o'clock, when the reports of several committees were read, premiums paid, and a variety of other business transacted,—after which they adjourned to meet at the Capitol in the evening.

At half-past seven, the President, Hon. JOHN A. KING, called the meeting to order. After the reading of some reports not previously made, the President delivered his valedictory address, which was listened to with great interest; and at its conclusion the President elect, E. P. PRENTICE, Esq., in a very appropriate manner, tendered the Society his thanks for the honor conferred upon him.

Hon. J. P. BEEKMAN offered a resolution tendering the thanks of the Society to Mr. King for his able and instructive address.

Also to the other officers of the Society for the able discharge of their duties during the past year.

Mr. CHEEVER offered a resolution tendering the thanks of the Society to Prof. JOHNSTON for his eloquent address at the State Fair and for the able and interesting series of lectures recently delivered.

Mr. JOHNSON offered the following resolutions, which were unanimously adopted:

Resolved, That the members of this Society cherish with deep respect the memory of the late HENRY COLMAN—a gentleman long and well known for his active zeal in the cause of Agricultural improvement, and especially for the many interesting and instructive effusions of his pen on the various branches of rural economy.

Resolved, That we sincerely sympathize with the family of Mr. COLMAN in the painful bereavement they have sustained; and that the Secretary forward to them a copy of these resolutions.

On motion, it was agreed that the Executive Committee meet at the Society's Rooms at 10 o'clock on Friday morning.

The Society then adjourned.

AWARD OF PREMIUMS.

ESSAYS.—Connection of Science with Agriculture—adapted to Common Schools—Prof. John P. Norton, of Yale College, Conn., $100.

History of Indian Corn—Chas. Lewis Flint, West Roxbury, Mass. Silver Medal.

FARMS.—E. S. Salisbury, Jefferson county—second premium, Silver Cup, $30—3d. Helim Sutton, Seneca county, Trans.

DAIRIES.—1. Horace Clapp, Houseville, Lewis County, Silver Cup, $50—2. John Holbert, Chemung, Silver Cup, $30.

BUTTER.—Horace Clapp, Lewis county, Joseph Cary, Albany, John Holbert, Chemung, and Hector C. Tuthill, Cayuga county,—each a Silver Cup of the value of $15—2. Noah Hitchcock, Homer, Silver Cup, $10.

WINTER WHEAT.—Adam Clarke, West Dresden, Yates county, 42 bushels per acre, on 50 acres, $10.

J. J. Thomas, Macedon, Wayne county—experiment as to the ripening of wheat, $5.

SPRING WHEAT.—Geo. R. Eells, Oneida county, 30 bushels per acre, $15—2. H. B. Bartlett, Paris, Oneida county, 31 bushels per acre, $10.

RYE.—David Conrad, Brunswick, Rens. county, 36 bushels per acre, $15.

INDIAN CORN.—1. E. R. Dix, Vernon, Oneida county, 83 bushels per acre, $20—2. Peter Crispell, Jr., Hurley, Ulster county, 80 bush. per acre, $15.

C. W. Eells, Wm. Baker, Augustus Flint, for samples of seed corn, vol. Trans. to each.

BARLEY.—1. E. M. Bradley, Ontario county, 50½ bushels per acre, $15—2. E. R. Dix, Vernon, Oneida county, 48 bushels per acre $10—3. Benj. Enos, De Ruyter, Madison county, 47 bush. per acre, $5.

OATS—Peter Crispell, Jr., 80 bushels per acre, $15—2. E. M. Bradley, $10.

BUCKWHEAT.—1. Robert Eells, Oneida county, 33 bushels per acre, $10—2. Wm. Baker, Lima, Livingston county, 29 bushels per acre, $8.

PEAS.—E. S. Salisbury, 27 bushels per acre, $10.

Rapalje & Briggs, Rochester, for samples of seed peas, Trans.

POTATOES.—1. Best quality, H. B. Bartlett, 252 bushels per acre, (Carter's,) $15—C. W. Eells, 246 bushels per acre, $10—3. Nelson Van Ness, Chautauque county, 218 bushels per acre, $5. Greatest quantity per acre, Martin Springer, Brunswick, Rens. county, 316 bushels, $15. Aaron Killam, Mexico, Oswego county, 13 fine varieties from seed, $10.

RUTA BAGA.—Joseph Hastings, Rens. Co., 984 bush. per acre, $10

CARROTS.—1. E. Risley & Co., Fredonia, Chautauque county, 941 bushels (60 lbs. per bush.) on half an acre, $8—2. Same 864 bushels, $6—3. L. B. Langworthy, Rochester, 575 bushels on half an acre, $4.

John S. Gould, Albany, for fine specimens of cauliflowers and squash, $3.

FRUITS.—*Apples.*—J. C. Hubbard, Troy, Mich., Trans. and Thomas' Fruit Culturist.

L. P. Grosvenor, Pomfret, Ct., Trans. and Downing's "Fruits,"

R. H. Brown, Greece, Monroe county, Trans.

J. H. Watts, Rochester, Trans.

J. D. Campbell, Rochester, Fruit Culturist.

E. P. Prentice, Albany, Downing.

H. A. Underhill, Macedon, Wayne county, Trans.

R. J. Pardee, Palmyra, Downing.

Hiram Foster, Palmyra, Fruit Culturist.

Herman Wendell, Albany, Downing

J. W. Bailey, Plattsburgh, Trans.

B. Hodge, Buffalo, Trans.

S. Morgan, Albany, Fruit Culturist.

Chas. Ross, Washington county, Trans.

Elwanger & Barry, Rochester, Trans.

Wm. Rogers, Wayne county, Downing.

Dennis Clark, Wayne county, Trans.

Robert Patterson, Perry, Wyoming county, Fruit Culturist

J. J. Viele, Troy, Fruit Culturist.

Pears.—S. Miller, Rochester, Fruit Culturist.

Grapes.—R. J. Pardee, Downing.

Joseph Cary, Albany, Fruit Culturist.

☞ If you would not be forgotten as soon as you are dead, either write things worth reading, or do something worth writing.

Answers to Correspondents.

Canary Grass.—G. N., Hobart, Del. County, N. Y. This grass will perfect its seed in this latitude. It is usually sown in drills, with a machine, about one foot apart, requiring from sixteen to twenty quarts per acre. It is an annual, and the seed is sown at the same time of sowing spring grain, and ripens nearly at the same time, or rather later. The yield is from twenty to thirty bushels per acre. The straw is eaten by cattle and horses.

Berkshire Hogs.—B. S., Greenwich, N. J. There are no full blood Berkshires in this neighborhood, and we are unable to say where they can be had.

Colza.—N., Bridgeton, N. J. We have heard of no experiment with this plant in this country. If any one has tried it, we should like to know the results.

Stump Machine.—J. F. C., Grand Rapids, Mich. The description of the article to which you refer, (*Cultivator* for 1846, p. 116,) evidently contains a mistake in regard to the length, which is there given as "two feet." We regard it, however, as a matter of little consequence, as the cut gives a definite idea of the form of the article, and it is obvious that it should be of such dimensions as will suit the size of the stumps. We have seen such things used of various sizes. It is only stumps the roots of which are considerably decayed, that can be taken out in this way; but for such the contrivance answers well.

Seeding land to Grass.—S. W., North Easton, N. Y. On lands of medium dryness, we have used, for one acre, eight pounds or four quarts red clover, eight quarts timothy or herds grass, and from half a bushel to a bushel (according to its cleanness) of red top.

The White Snow-Bird.—S. W. According to Dr. De Kay, this bird breeds mostly, high at the north, along the coast of Labrador, but has been known to breed in Massachusetts and Maine. In winter it comes down from the north, and is sometimes seen as far south as Maryland and Virginia. It feeds on the seeds of weeds and grasses, which it finds above the snow.

Ohio Mineral Paint.—A Farmer. The substance of what we know in regard to this article, was given in our last volume, page 379.

Food of Fowls.—L. B., Clayton, N. Y. Fowls should have a variety of food. Indian corn, barley, buckwheat and wheat-screenings, may form the bulk of their food in winter; but they should have some animal food, such as butcher's offal, and pure green vegetable food, as cabbages and potatoes; and also mineral matter, as lime, oyster-shells, bones, and gravel.

Plaster.—C. H., Central Village, Ct. The qualities in plaster, to which its action as a fertilizer are attributable, are undoubtedly dissipated, in some degree, by exposure to the weather; but with that which has been kept in casks, as you describe, we should not think the loss was very great.

Colman's European Agriculture.—A. L., Gale's Ferry, Ct. This work is for sale by A. D. Phelps, Boston, and also at this office. It is bound in two volumes, price $5.

Guano.—We believe the best success has attended the use of guano when sown just before a rain, or applied in solution. The proper quantity is 200 to 300 lbs. per acre.

Fish for Manure.—We believe it is considered best to make them into compost with peat or earth, to be applied when decomposed.

Prouty's Centre Draft Plow.—A. B. P., Boone Grove, Ind. We have never heard of these plows being used in any soil where they did not work clean; and we are not aware of any objection to their use in "the black, loose soil of the prairies."

Tiles for Strawberry-beds.—J. I. K., Sing-Sing, N. Y. The tiles about which you inquire, are described in our volume for 1845, page 128. We do not know of any establishment where they are made, but it would be an easy matter to make a mould and have them made at any brick-yard, and burnt in a common kiln.

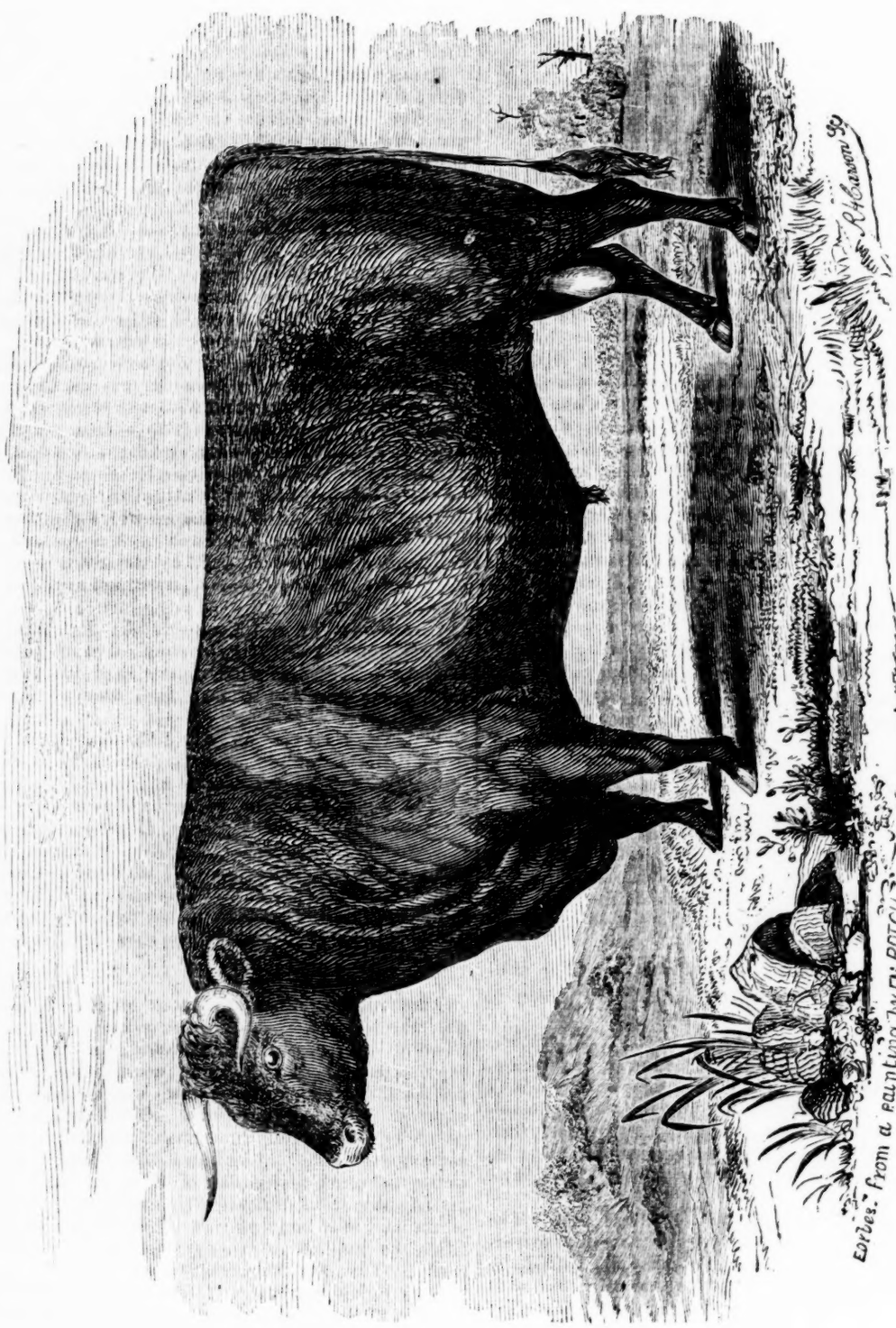
Centrifugal Wind-mill.—J. P., Cape Vincent, N. Y. There is a mill of this kind, on a small scale, in use in this vicinity. We cannot tell how it answers for general purposes. Perhaps some of our correspondents, who have more knowledge of it, will inform us in regard to its operation.

Ice-Houses.—O. L. D., Portage county, Ohio. It is best to build an ice-house with a double partition, the space to be filled with tan-bark, or some non-conducting substance. The bottom should be covered a foot deep with small blocks of wood, and over these a covering of shavings. Some lay the ice on the shavings—others lay a floor to receive the ice over the shavings. The ice should be packed as closely as possible. You will find a cut and description of the plan adopted by the great ice-merchants of Cambridge, Mass., in our volume for 1847, page 345.

Charcoal and Lime.—E. C. J., Campbell Court-House, Va. If your charcoal and lime are mixed together, and the lime is slaked, you may use with safety a bushel to each fruit tree of the size you mention.

Wheat Drill.—W. S., Lahaska, Pa. The grain drills which are most distinguished, so far as we know, are the following: Sherman's, made and sold by J. W. Sherman, Ontario, Wayne Co.; Palmer's, made by Fitch & Barry, Brockport; Graggs & Reynolds', made by O. Reynolds, Webster, Monroe Co.; Burrall's, made by T. D. Burrall, Geneva. Our acquaintance with the operation of these drills is not such as to enable us to say which is the best. We should be glad to hear from those who have tried different kinds.

Abolition of Bull-fights in Spain.—It is said that measures are about to be taken by the Junta General of Agriculture at Madrid, for the gradual suppression of Bull-fights, in consequence of their prejudicial effects on the interests and morality of the country. It is calculated that 4000 horses annually perish in Spain upon the horns of the bull, and in a country essentially agricultural like Spain, this continued and cruel destruction of a useful animal, deprives those who dedicate themselves to the culture of the soil, of a large amount of working power that might be applied to the augmentation of their prosperity. The annual destruction of 1500 bulls in the various fights celebrated throughout the Peninsula, destroys the best working breeds, impairs the quality of beef, impoverishes the milk markets, contributes to the decadence of pastures and fields, and augments the price of butter and milk, which in civilised countries are counted amongst the necessaries of life. All these considerations, and the fact that the people by attending bull-fights acquire habits of brutality and ferocity, by becoming accustomed to scenes of bloodshed, is likely to induce the government to attend to the representations of the Junta of Agriculture.



DEVON BULL "MAJOR,"

Bred by R. C. GAPPER, *Thornhill, Canada, and owned by* R. H. VAN RENSSELAER, *Butternuts, N. Y.*

The Farmer's Note-Book.

Mr. Van Rensselaer's Devon Bull "Major."

(*See Portrait on preceding page.*)

This animal is at present the property of R. H. VAN RENSSELAER, Esq., of Butternuts, Otsego county, N. Y. He was bred by R. C. GAPPER, Esq., of Thornhill, near Toronto, Canada West, and was exhibited by him at the show of the N. Y. State Ag. Society at Syracuse, where he took the first premium in the *foreign* class of Devons.

"Major," (calved in 1842,) was by "Billy," dam "Beauty," both imported by Mr. GAPPER, from the stock of Mr. DARCY, of North Moulton, Devonshire, England.

"Major" is in every respect, one of the best bulls we have ever seen. His portrait, though generally true to the original, and highly creditable to the skill of the gentleman who made the drawing, as well as to the engraver, is in no way *flattered*. He is, in fact, just one of those animals, which, though rare, are sometimes seen, whose points of excellence cannot be fully shown on paper or canvass. He has great bulk, justness of proportion, and compactness of body, short-jointed, clean, and strong limbs; giving a general form which confers constitution and endurance, with the greatest power of draft. It is a form, also, which is fitted to carry the greatest weight of valuable flesh in proportion to the bone and offal. He is a *good handler;* the skin is not thin and papery, nor rigid and unyielding, but with sufficient substance to denote hardiness, has the mellowness and elasticity indicating thrift. The color is cherry-red, with the orange-colored ring round the eye and muzzle, characteristic of the true North Devon.

The distinguishing traits of the Devon breed of cattle, were given at some length in our last volume, pp. 120, 121, 122.

Crops of 1849---Drainage.

EDS. CULTIVATOR—Our hay crop was never better since I lived here, (28 years.) The rains in the end of May and beginning of June, made both meadows and pastures where not over stocked, excellent. Taking this county, (Seneca) as a whole, I think there was an average crop of wheat. In the north half of the county, there was considerable loss by the weevil or midge; but the south half of the county was clear, or nearly so, of that insect. I had 59¼ acres of land in wheat, from which I obtained an average of a fraction over 25 bushels per acre, which is a tolerable crop in these times, but much short of what I expected when it was sown. The wire-worm cut off a 20 acre field very much in the fall, so much so that I intended to have plowed it up in spring; however, it recovered wonderfully, and gave at least from one-half to two-thirds of a crop. From the severe drouth, our corn crop was a short one, although after the light showers early in August, it recovered greatly, and all those farmers who worked their corn early, and continued working it, got much more corn than they at one time expected; but those who let the grass, weeds, and Canada thistles master the corn, got nothing worth husking. Some say they could not see what was the reason their corn was so poor, as they manured the land well before planting. I suppose they are not aware that on our stiff soil, barn-yard manure does no good for the corn, if put on immediately before planting; indeed, in a dry season, it does harm. Ever since I manured my corn ground in the fall, I have never failed of a fair crop. This season I made 80 bushels of ears to the acre, from 28 acres, being all I planted. Being disappointed of drain-tiles in the spring, I was prevented from planting as much as I intended.

As I sowed neither barley nor oats, I can say little about them. I find corn a more profitable crop than either. I am feeding cattle as usual. I have 40 steers now. The feeding of cattle is becoming quite a business hereabouts. Three years ago, when I commenced cattle-feeding with 43 head, I could not have found as many in ten miles around me. Now I can count 200. I think this mode of farming will ultimately improve our grain crops very much, and where rightly conducted, will pay much better for the corn, or even barley, than selling to distillers and brewers, to be manufactured into a poison to kill themselves or neighbors.

A word or two about draining. I notice what Mr. Cheever says* about draining. He thinks it rather startling that I should lay out 25 dollars per acre on draining; but if I had Mr. Cheever with me on my farm for six months, I would convince him that it was the most profitable business a farmer can go at, in this part of the United States. He says, Mr. Johnston is a Scotchman; and that he (Mr. Cheever,) "agrees with Professor Emmons, to some extent, that the system of draining practiced in England and Scotland, should not be model for us." It is true I am a Scotchman, and I will tell Mr. C. and Prof. E., that I have never seen, either in Scotland or the United States, a remunerating crop of wheat, grown upon land that was wet, or even very damp; and never saw such land thoroughly drained in either country, (if a wheat soil,) but it produced the very best crops; and I have seldom seen wet or damp land produce a good crop of summer grain, even in this dry climate. Wet or damp land, when under tillage, is much more affected by drouth than dry land, and dry land, when in pasture, will put on much more beef or mutton (say fat) than wet or damp land.

I should like much to have Mr. C. and Prof. E. here, if it were only for one day, in May or June next. I have a field of 23 acres now in wheat; the wettest I drained last spring. The want of tiles prevented me from draining all that was wet. Those gentlemen would just see the difference in the piece that was formerly so wet that it would not raise over half a crop, and that which is only a little wet, but enough so to make a thin crop of wheat. As to what Mr. C. says about the drains filling up on some soils, I do not agree with him. I have drained on different kinds of soil, and I have never had a stoppage where the work was properly done. I am often asked—"won't the tiles sink, or will they not fill up, in a few years?"

I took up about 20 rods of a drain last June, that had been laid for ten years, in order to put in larger tiles, as I was going to connect several other drains with it; and I sent for my friend and neighbor, Mr. Delafield, to see them taken up, as he had some misgivings about sinking or filling up. He can now say, that they were neither sunk, nor filled the least particle; indeed no man could have told that they had been a day under ground, from the appearance of the tiles. I have taken up sometimes tiles that had been longer laid, and with the same result. Only let the tiles be large enough, (or put more of them into the main drain,) and there will seldom be

* Reports of agricultural discussions at Albany, *Transactions* N. Y. State Ag. Society, 1848, page 664.

any trouble, after they are laid down. But we must have more tile machines in operation. I intended to have had 10,000 tiles home this winter; but find the maker has only a very few on hand. Farmers ought to have the tiles on the ground in winter; the expense of drawing is little, and if there are any soft tiles, they will decompose before spring, which is much better than to put them in the drain. JOHN JOHNSTON. *Near Geneva, Dec.* 25, 1849.

Agricultural Economy.

EDS. CULTIVATOR—The economy of the farm is that which first concerns the individual. Not to get rich; not simply to sell the greatest possible quantity of produce, but to maintain the original fertility of the soil or constantly improve it. The common farmer cannot expect to get rich, but with good management he may obtain a 'comfortable living,' and have leisure to enjoy social blessings, and time to devote to reading, and mental improvement. This should be done without *wearing out* the soil.

True economy consists in returning the same elements to the soil that are taken from it, and in the same quantity. This will keep the soil fertile, so that it will produce the same crops, both in kind and quantity, year after year. Vegetable productions derive part of their constituent elements from the earth, and part from the atmosphere. That part derived from the earth must be returned to it again, or it will eventually become barren. The ground that produces one hundred bushels of grain this year, will not, under the same circumstances, produce the same amount next year, unless its equivalent is returned. And the more a piece of land is cropped without manuring, the more labor and expense is required to obtain a crop from it. The farmer that sells hay, grain or stock,—if he does not use extra means to increase his manure—is reducing the fertility, and consequently the value of his farm. On new land this effect is not seen so clearly, but it is nevertheless true, and in time will be manifest.

The older settled parts of New England, furnish sad illustrations of want of true economy. Except in the vicinity of cities and villages, the soil has long been deteriorating. This is the result of bad management. The productions of the soil have been sent to market, and the fertility, in this way taken from the soil, has not been returned. Pastures have been grazed from April to November, and the fat cattle and sheep sent to Brighton. Hence, grain and roots cannot be raised as easily as they could be formerly, and pastures cannot sustain half the stock they could thirty years ago. And we hear frequent complaints of milch cows being affected with "bone disease," and bone dust must be procured for their relief. (Better *bone-dust* the pastures.) A reversed order of things is in many instances taking place. Less land is tilled and more pastured. The area of woodland is sufficiently limited, and it will not do to make further encroachments upon it for pasturage, therefore when the pastures will not summer the stock, that the products of the fields will winter, they must be enlarged by a portion from the fields. Or when a piece of tillage land is reduced so as not to pay for cultivating, it is "turned out" to pasture. Still by concentrating labor and manuring better, the original fertility of a portion of the farm may be maintained, but its aggregate productiveness is much diminished. And when it requires constant toil the whole year "to make both ends meet," the rich lands of the west present visions of ease and plenty too brilliant to resist, and emigration to Illinois, Wisconsin or Iowa, is "next in order."

The land in the immediate vicinity of cities and large villages is becoming more fertile. The source from which this fertility is derived is evident. Every year thousands and tens of thousands of cattle and sheep are collected in Vermont and New Hampshire for the *city* consumption. The vegetable productions of the soil, to an enormous extent, are furnished for the same purpose, together with large quantities of flour, daily supplied from Western New-York and farther on. In this way, the elements of fertility are transferred, the suburbs of cities are enriched, and remote districts impoverished. The grazing portions of Vermont and New Hampshire are becoming less valuable, and so are all places that *export* more fertility than they *import* or manufacture.

Is it worth while to seek a remedy for these evils? In China the people are always engaged in saving every particle of manure that can be found; the English import vast quantities of fertilising substances; but our population is not so dense as to render it absolutely necessary in our case. Besides the cheap and fertile lands of the West are so inviting, that it must be a long time before expensive cultivation will be resorted to. Yet it is important that we should understand what we are about. If there are defects in our system let them be pointed out, and if possible, remedied. At any rate, farmers should save and apply all the fertilising substances within their reach. W. L. EATON. *East Weare, N. H.*

Water-tight Cellars.

EDS. CULTIVATOR—Some time ago there was published in *The Cultivator* an inquiry for information how a wet cellar can be made dry, when draining is inconvenient? A wet cellar is a sad thing—a nuisance to a farmer, and always inconvenient for the storage of many valuable articles of agricultural produce. When under a dwelling, it is frequently the fruitful, yet unsuspected cause of intractable sickness, to those living within the influence of the pestilential miasma, that, during warm weather, continually rises from it.

The subject is of such importance, as to press itself upon the attention of reflecting minds, and to call for a more extended notice than it has yet received. Every reader who has experience in the use of means to make a dry cellar, should communicate it to the public. In the absence of experience to make a "wet cellar dry," it may be useful to show how a cellar can be constructed, secure from water, by a cheap method, in any place where *clay* can easily be procured. A brief sketch, also, of some of the uses to which this substance is applied in connection with its impermeable property, may afford hints how it can be used to effect the purpose, in reference to which the writer of the publication alluded to, asks information.

Every farmer knows that water will not soak through a clay subsoil. Some careful farmers, availing themselves of their soil, dig ponds in the lowest part of their field, or orchard, to collect and retain rain water for the accommodation of their hogs in pasture; or in very dry summers to haul a few barrels of water there for that purpose. Clay is extensively used along the line of our canals, to stop the leakage through the embankments. When used for this purpose, or to stop the leakage through the breast of a mill dam, or the bank of a meadow ditch, it is called "puddling;" and when this is properly

done, it is capable of resisting a heavy pressure of water.

Availing ourselves of this water-tight property of clay, we use it in the construction of our cellars, in a simple, but effectual manner. We stake off and dig the cellar, so large as to leave a space of from eight to twelve inches, between all the walls of the intended building and the banks. This space to be continued from the surface to the foundation; and a sufficient quantity of clay must be provided to fill this space. The work of filling it in, and ramming it solid, should commence soon after the foundation of the building is laid, and be continued as the masons progress with the wall, until the surface of the ground is reached. Small stones and chips must be carefully left out, and only a few inches of clay thrown in and rammed at a time.

The writer of this has tried the method here given with a good result, and does not know an instance in which it has failed to make a dry cellar. This invariable success has suggested the plan to stop the leakage of water into a cellar of faulty construction, by digging out next the walls of the building, the width of a shovel or more, and as deep as their foundation. This excavation to be filled tight with clay, and a dry cellar has been the result.

There may be wet cellars caused by a different state of things than are here referred to; for instance an upward infiltration of water through the bottom of the cellar — or one or more springs may rise therein. Such defects might probably be remedied by the same means that are recommended in a former volume of *The Cultivator*, to sink a spring or pond of water in a field. Not having much experience or opportunity of observing the effect of these measures, I leave the subject to the consideration of others. A B. *Setzler's Store, Chester Co., Pa.*

Bartlett's Double Plow.

The peculiarity of this plow consists in combining two plows in such a manner that two furrows can be turned at once, with one team and one plowman. We are aware that the combination of plows is not new; but the mode of connecting them in this case, is different from any with which we have been before acquainted. In distinction from others, the frame which connects these plows is so made that each plow has in some degree an independent action, by which the two, when working together, are adapted to the ordinary inequalities of surface, and insure the proper execution of the work. The principle of combination will apply to plows of any size or shape.

We have had two opportunities of witnessing the operation of this plow, on the farm of W. O. Bartlett, Esq., of Worcester, one of the patentees. We have seen it used under different circumstances, as follows:

1. On plain land where the soil was loose and light. A good yoke of oxen readily drew the plow at their accustomed gait, making two furrows, each seven inches deep and ten inches wide, one man holding the plow and driving the team. The plow ran for many rods after it was set in, without being touched by the plowman.

2. On a stubble-field, where the soil contained many small cobble stones, and where the plow was often turned out by large boulders and fast rocks. The same man and the same oxen managed the plow as in the above case, and the depth and width of the furrows were also the same. The work was as well performed as it could have been in any way No difficulty was experienced in getting the plow over the stones, or in running the furrows close to them; the cobble stones did not throw the plow out; on the contrary it held its depth as well, if not better, than a single plow could have done—the two plows seemed to steady each other, which tended to preserve a uniform depth.

3. On somewhat rough land, with a very tough sward. In this case two large plows were used, each cutting a furrow eight inches deep and twelve inches or more wide. Four good oxen were attached to the plow, one man drove the team and another held the plow. The work was well done and with great dispatch.

This plow has been considerably tried in Massachusetts by many of the best practical farmers, who have certified that it makes a great saving in the expense of plowing. We entirely coincide in these statements, and have no hesitation in saying that the introduction of this implement will be attended with signal advantage. On tenacious soils, it may induce a better system of tillage. To insure the best crops on such soils, particularly of wheat, it is important that they should be plowed fine, and thoroughly pulverised. This is generally admitted, but the objection raised is, that such nicety of work takes too much time; and hence, in order to go over the requisite extent of surface, the furrows are made wide, leaving the soil in compact masses. By the use of the double plow, the furrows may be cut deep and narrow, while at the same time the work is more expeditiously performed, and at less expense.

In wheat-growing districts, we think this will be found of much importance, especially in plowing fallows, and not less in clover ley, where only one plowing is given before seeding. On all plain lands, and on the western prairies, the saving which will result from this combination of plows, will perhaps, be still more striking than in other situations.

We append the following from a letter lately written to Mr. Bartlett, by Hon. D. Webster:

In June, 1849, an experiment was tried on my farm in Marshfield with one of your double plows, on a piece of land intended for turneps, somewhat rocky, with a hard sward, not having been plowed for many years, and many bunches of bushes growing upon it. The plow appeared to work well, and Mr. Wright, who has been our principal farmer for many years, was greatly pleased with it. The furrows were as well laid, as I thought, as they could have been by any single plow.

Mr. Taylor, who lives on my farm in New Hampshire, wishes me to send him a double plow. His land is level, rather a rich loam, and entirely free from stones. He thinks that with a double plow, and a pair of horses, with a light hand to hold, he could quite easily plow three acres a day, for many days in succession.

It struck me, when seeing the plow in operation, that one part steadied the other, and made the work smooth and even. The saving of labor in the use of the double plow, is too apparent to need remark.

Profits of Fowls.

Mr. Edwin Howard, of Easton, Mass., gives an account of the profits of his fowls from the first of December, 1848, to the same period of 1849. He began with nineteen hens and a cock, and in the spring he added one more hen. The whole stock was valued at twenty dollars. The number of eggs produced in the year, was 1,851; the number of chickens raised by himself was 82. The eggs sold, brought $27.97, and the fowls sold, $46,48. Thirty-two fowls on hand, are reckoned worth $30. His

fowls are mostly of the variety called Cochin China, imported by Mr. BAYLIES, of Taunton, Mass. The eggs that were sold were reckoned at fifty cents per dozen, though one dollar was the price charged; but fifty cents per dozen was deducted for the trouble of packing and sending off. The accout stands thus:

Eggs sold—1300, ...	$27 97
Eggs not sold—581, at 15 cents per dozen,.....	7 27
Fowls sold.....	46 48
Value of fowls on hand over last year at this time,.....	10 00
	$91 72
32½ bushels of corn and meal, at 75 cents,.....	24 37
Balance in favor of fowls,.....	67 35

Wire Fences.

EDITORS CULTIVATOR—I regret to notice in the January number of the Cultivator, an article against *Wire Fences;* and to show that the writer is "reckoning without his host," I will state that No. 10 wire, which is the finest used, can be bought for 5½ cents per pound; and that Mr. ELLET, the constructor of Wire Suspension Bridges, in a report, states that a single strand of this No. will sustain 1500 pounds. A fence of wire of this No. may be made for 50 cents per rod; and in case of the "plunging of heavy cattle against it," they would probably meet with the resistance of three of the wires, and an animal in breaking them must employ a force equal to about 4500 pounds; and the writer alluded to thinks that when made even of wire so large as to cost $2 per rod, it will be "frequently broken" in that way. Now according to the above calculation, they must be mighty cattle, possessing "a power" of strength and force fully equal to the iron-horse called Loco-motive.

Any one who has observed the effect of wind in swaying and breaking off the wires of a well-constructed wire fence, must admit that the objection is at least a windy one.

Now although I have had but about 40 rods of experience in making this kind of fence, and which cost me less than 50 cents per rod, I am fully of the opinion that it is worthy of the attention of every farmer who has not "stones on his fields which he wishes to get rid of;" for I know of no locality where a farmer can erect a rail or board fence for much less than $1 per rod; but I can refer you to many large sections where every farmer will tell you his rail and board fences cost him nearly double that sum, and is yearly increasing as our forests and wood lots are decreasing, and are enhanced in value. That a cheaper substitute for field fences is loudly called for, no man can dispute. It is true that the American farmer is at greater expense for the support of his fences than any other farmer in the world. It is by far the heaviest drawback upon the profits of the farmer, that he is obliged to contend with. Indeed it stands like a lion in the pathway of many great improvements which long ago would have been made, and which every farmer yearly sees and is desirous of making, but is reluctantly compelled to turn from, and apply all the means in his power to his decaying fences of wood. And how, I ask, are our western prairies to be fenced, where in many instances, not a tree is to be seen or stone found for leagues; and it has been found that embankments of earth there will not answer. In consequence of the great cheapness of iron, many have been led to experiment with it in the form of wire as a substitute for wood fences, and I see nothing against its success, after, perhaps, some better method shall have been contrived for straining, fastening and uniting the strands; and should it come into general use, it would add immensely to the great iron manufacturing interest of the country.—Three and a half feet high is sufficient for sheep, and 5 feet for cattle and horses; and I should be pleased to give such information as I am possessed of with regard to constructing it

And now I earnestly suggest to every reader of the extensively circulated Cultivator who has had any experience or observation respecting Wire Fences, to transmit their views to this journal, together with a minute method of constructing it, and I doubt not that an opinion may at once be formed with regard to the propriety of its general adoption A. B.

The original signature of the above communication having been that of a well-known and regular correspondent of *The Cultivator*, we have thought it proper to substitute another in its stead. We shall be glad to receive from A. B., and from any other of our readers who have erected wire fences, their views as to the best method of constructing it, its cost, and probable permanence.—EDS.

Products of Labor and Capital.

The Report of the Commissioner of Patents for the year 1848, makes the following estimate of the products of labor and capital in the United States for that year:

	Quantities		Value.
Wheat,.....	126,364,600	bushels,	$145,319,290
Indian Corn, ...	583,150,000	"	344,058,500
Barley,.....	6,222,050	"	4,044,332
Rye, ...	32,951,500	"	21,418 475
Oats,.....	185,500,000	"	64,925,000
Buckwheat,.....	12,523,000	"	6,266,500
Potatoes, ...	115,475,000	"	32,342,500
Beans,.....	10,000,000	"	10,000,000
Peas,.....	20,000,000	"	17,500,000
Flaxseed,.....	1,600,000	"	1,920,000

The prices of these articles per bushel, are thus estimated:

Wheat, ...	115 cents.	Buckwheat, ...	50 cents
Indian Corn,.....	59 "	Potatoes, ...	30 "
Barley, ...	65 "	Beans, ...	100 "
Rye, ...	65 "	Peas, ...	87½ "
Oats, ...	35 "	Flaxseed, ...	120 "

It will be seen that Indian Corn is estimated at the immense sum of more than $344,000,000—while the gross amount of the Wheat produced was little more than $145,000,000.

	Pounds.	Value.
Tobacco,.....	218,909,000	$8,756,360
Cotton,.....	1,066,000,000	74,620,000
Rice,.....	119,199,500	3,575,985
Sugar,.....	275,000,000	13,750,000
Silk,.....	400,000	800,000
Hops,.....	1,566,301	140,667
Beeswax,.....	789,525	165,800
Honey,.....	23,665,750	2,368,575

The prices are thus given:

Tobacco,.....	4 cents.	Silk, ...	$2 00
Cotton,.....	7 "	Hops, ...	9
Rice, ...	3 "	Beeswax, ...	21
Sugar, ...	5 "	Honey,.....	10

The quantity of molasses is estimated at 9,600,000, which, at 28¼ cents, realized $2,736,000.

Wine, 500,000 gallons, which, at $1, brought $500,000.

The annual value of pasturage is put down at $60,768,136.

The value of the residuum of crops, such as straw, chaff, &c., $100,000,000. Of manure, $60,000,000. Product of orchards, $9,071,130. Of gardens, $45,000,000. Nurseries, $741, 917.

Butchers' meat, including mutton, beef and pork, $146,597,360.

Hides, felt and tallow, $20,000,000.

Neat Cattle, $4,401,470. Horses, mules and asses, $8,129,350. Poultry, $11,680,512. Eggs,

$5,431,500. Live geese feathers, $1,000,000. Products of the dairy, $42,233,785. Milk, $20,000,000.

Products of the forest, including lumber, furs and skins, $22,250,000.

Firewood, $37,500.000.

Fisheries, $17,581,339.

Profits of capital employed in commerce, $24,000,000.

Value of the products of manufactures, $550,000,000.

Products of the mines, including iron, lead, gold, silver, marble, coal, &c., $75,000,000.

Profits of Banking and Insurance Companies, $20,000,000.

Profits of money loaned at interest, $20,000,000.

Rentals of houses and lands, $50,000,000.

Profits of professions, $50,000,000.

The aggregate of the whole estimate of the produce of labor and capital in the United States in 1848, is given as $2,323,564,765.

Things in Virginia.

Eds. Cultivator—There can be no question but a large number of our farmers would not hesitate to spare a dollar or more, to see some trifling amusement—a "bear dance," or a cock-fight; and yet are indifferent towards an agricultural paper, which like a true friend, sticks by them, ever ready to point out the poor and wet parts of the farm, saying—"drain, manure, plow deep, harrow fine, seed well, read and observe."

Allow me to make a suggestion. Suppose every member of an agricultural club or society, were to make a report of all his operations at the end of every year, stating the number of his family, the number of laborers and the number of those unable to labor, the number of stock of all kinds, the food consumed by all, the work for each lot or field and the number of acres in each, the kind of crop, the yield, the amount of money received and spent, the state of the weather for each month, with such remarks as suggest themselves—would it not be useful?

Our crops last year were fair, except fruits, of which we had none. I did not see a good peach or apple the whole season. The whole fall and December were very pleasant, till the night of the 30th ult., when it commenced raining, then hailing, and ended in snow, which fell six inches deep. The thermometer was down to 12° on the first of January. J. Bunch. *Chuckatuck, Nansemond Co., Va., Jan.* 1, 1850.

Mode of Planting Corn.

Eds. Cultivator—We have in this section a method of planting corn which may be new to some of your readers.

After the ground is furrowed one way, one man commences furrowing in the other direction. A boy or man follows and drops the corn. Then another, provided with an implement something like the common shovel plow, with a square piece of iron about the size of a common hoe screwed fast to the end of it, follows the dropper and covers the corn, by letting the iron scrape up the dirt from the bottom of the furrow, and deposit it immediately on the hill. As soon as the corn is covered up, the planter is dropped again for another hill, &c. This method here, in our new fields, where stumps are very thick, is a great saving of time. Two men, and a boy 12 years old, with two horses, can furrow out one way, and plant eight acres in a day. This I know to be true, for I helped to plant one of my fields of eight acres in this manner last spring. The shovel-plow, with a square piece of iron on the end of it, will answer the purpose. W. R. Webb. *Vienna X Roads, Clarke Co., Ohio, Dec.* 27, 1849.

Profits of the Dairy.

Eds. Cultivator—We have many times noticed in your paper, statements made by different writers of the profits of a dairy. Below we give you an account of the proceeds of our dairy for the year 1849, from forty-one cows, six of which were heifers, having their first calves the same season:

INCOME.

41 calves, at four weeks old, $4 each	$164 00
3,748 lbs. cheese, at 9 cents per lb	337 32
6,569 lbs. butter, best quality for table use, at 20 cts per lb.	1,313 80
6,570 gallons. or 18 galls. per day, new milk, used on table, never skimmed, at 3 cts. per quart	788 40
For manure	200 00
Total amount	$2,803 52

EXPENSES.

10 tons wheat bran, or ship stuff, at $10 per ton	$100 00
600 bushels beets at 1s per bushel	75 00
62 tons hay, at $8 per ton	496 00
26 weeks pasturing for 41 cows, at 1s per week each	333 25
Slops from kitchen during the year	15 00
Nett expenses	$1,019 25
Total amount	$2,803 52
Deduct expenses	1,019 25
Leaving a balance of	$1,784 27

Making an average to each cow, of butter 160 lbs. 3½ oz.
" " cheese 91 " 6½ oz.
" " milk 160 galls.

The milk, it will be understood, is that which is used on table by boarders, never skimmed.

Add manure and calves, and the total amount for each cow is	$68 37
Deduct expenses	24 86
Nett profit to each cow	$43 51

Made of butter in the month of October, 1849, 1st week 180 lbs.
" " " " 2d " 201 "
" " " " 3d " 191 "
" " " " 4th " 187 "
" " " " 5th ½ 173 "
Total in October 932 "

We prefer putting our cows in the stable while milking, at all seasons of the year. This affords an opportunity of *messing* twice a day, and is done regularly at time of milking, believing it the best time. Wheat bran, or shorts, mixed with slops from the kitchen, or dairy, make a good feed for milch cows.

Some think it quite objectionable and very unnatural for cows to eat or drink whey and milk, but we see no good reason for such objections.

We have practiced for some years feeding our cows the whey and skimmed milk from our dairy, mixed with wheat, buckwheat, or rye bran, and have never seen any injurious effects whatever—but, on the contrary, believe it to be very beneficial, and productive of good sweet milk and butter.

It is very necessary for milch cows to be well supplied with good pure water, especially in the winter season when fed on dry fodder. We make a practice of watering our cows twice a day, morning and night. This is given them in the stable, where they can drink at leisure, sheltered from cold and storm. *New Lebanon, Shaker Village.* Family of Jonathan Wood and Edward Fowler, numbering 130 persons.

A change of fortune hurts a wise man no more than a change of the moon.

A false friend and a shadow attend only while the sun shines.

Fools make feasts and wise men eat them.

The Horticultural Department.

CONDUCTED BY J. J. THOMAS.

Transactions of N. Y. State Ag. Society, for 1848.

This volume of nearly 1000 pages, (received through the kindness of B. P. JOHNSON, Corresponding Secretary,) should have had an earlier notice, especially for its valuable matter in relation to fruits. The most important article of this character is Dr. WENDELL'S Report, occupying 22 pages, and embracing outlines and full descriptions of American Summer Pearmain, Summer Rose, Autumn Strawberry, Pomme Royal (or Dyer,) Mother, Melon, and Wagener *apples;* Rostiezer, Tyson and Golden Biboa *pears;* and Red Gage and Purple Favorite *plums*. It also contains descriptions of White Imperial and Cooledge's Favorite *peaches; Moorpark* and *Breda* apricots; and Downton and Boston *nectarines*. A better addition to the excellent list of fruits already published by the State Agricultural Society, could not well have been made. The Wagener apple, a new variety from Yates county, received the premium of the Society, as a new fruit of the highest character; and the committee appear to have exercised fearlessly a discriminating judgment, in allowing no other to rank with the required standard, out of a large number presented for examination by some of the best cultivators in the country.

From a valuable and interesting article in another part of the volume, from the pen of N. LONGWORTH, of Cincinnati, well spiced with the peculiarities of his style, we extract the following:

Fox Grapes. "Two years since, I was informed of a superior German grape, cultivated by a German in our city, who had not only sold the fruit to our confectioners at a high price, but had already engaged all his cuttings, and refused $200 for the vine. I started in the pursuit, warm as the day was, and after trudging on foot for three hours through the dust, and a scorching sun, the garden was pointed out to me, where this celebrated grape was to be found. I became aware of its quality when within fifty feet of the vine, for I discovered the fine scent of the fox grape, that was so much admired in my days of boyhood. It proved to be a fox grape of the poorest kind, but ripened early, and I found I could buy the plant for $500. This was too high a price for a prudent Jerseyman to give, and I had my walk without any profit. I shall be pleased to furnish cuttings to any person foolish enough to deem them worthy of cultivation."

Strawberries.—The following statement of experiments and result of Strawberry culture at Cincinnati, from the same article, are interesting:—

The Hovey's Seedling bears larger fruit than any variety we cultivate. But it is subject to die out with us in winter. Its season of fruiting is short, and we deem it inferior in flavor to some other varieties common with us; and we have several varieties, that the average of the fruit is as large, and some larger. The average size, cultivated as we cultivate other varieties, is less than three inches; —I should say, less than two and three-fourth inches in circumference. I believe the strawberry with us acquires a larger size than it does east. Our apples, pears and peaches are larger. Some of my tenants this season had peaches measuring 14 inches, and sold their finest at $8 per bushel. But in justice to Hovey's Seedling, I would add that no garden should be without it, and though not found by us to be the most profitable for cultivation for market, it is a desirable variety to cultivate for sale, as its first fruit is larger than any other, and commands a higher price. * * * I trust the horticulturists of Boston will now have a staminate worthy of cultivation, in addition to the Boston Pine; for Mr. Schnieke informs me that a gentleman from Boston saw his bed of seedling pistillates, when in fruit, and paid him $6 for a few plants. Mr. Burr has certainly raised some varieties worthy of their notice; and Mr. McAvoy and Mr. Schneike, in the Garden of Eden, adjoining our city, have raised several thousand seedlings, from the largest pistillate fruits, impregnated by the largest fruited staminates; and among them, McAvoy had last season a pistillate that bore as large fruit as any of the Hovey in this vicinity, and its average size larger. It was shown at the exhibition, and he claimed the prize offered by the Society, as equalling what they required. The Society laid his application over till his seedling was further tested. * * * Mr. McAvoy raised more than 1,000 plants from the seed of the Hovey, impregnated by the Swainstone: Yet among them, he found but one plant which he deemed worthy of cultivation, as new varieties are not desirable, unless equal to, or superior to the parent

Horticulturists are familiar with the fact that nothing retards so much the growth of a plant as the production of seed. The practical result of this influence in strawberry beds, alluded to in the following remark, should not be forgotten:

Young plants often spring up in the bed from seed, and if staminate, and left two years, will often root out half the pistillates, as it is generally the more vigorous plant, and having no fruit, or but little to bear, will form a dozen plants, whilst the pistillate is forming one. It is in the vegetable kingdom, as with we lords of creation, the female is trodden under foot.

Houghton's Gooseberry.

A correspondent inquires, "How has this new gooseberry proved with you, and is it equal to its reputation?"

Houghton's Seedling.

This variety is too small ever to become *famous* in this day for showy exterior; it is of a pleasant but not decidedly high flavor. A single season, on a very small bush, with bearing shoots only a few inches high, indicates, in accordance with its repu tation, a profuse bearer; whilst its hardiness, easy propagation, and freedom from mildew, constitute very desirable qualities. The figures which have been published of this fruit, unlike those usually exhibited of new sorts, are only about a fair average in size, being about three-fourths of an inch long. Salem, Mass. is the place of its origin.

Rotation of Crops.

Extracts from Correspondence.

"The doctrine of Rotation of Crops for ordinary soils, is well established, and Judge Peters of Pa. extended it to forest trees, showing that one kind of timber, frequently, if not generally, succeeded some other kinds, as oak after pine, and birch or beech after hemlock. Lately, Professor Liebig, however, showed that the ashes of the vine formed an excellent manure for the same plant; and others have recommended the twigs and leaves *unburnt* for the same purpose. Why lands become impoverished when the crops are *removed*, is more easily understood than why the forest should require a rotation when all the timber rots on the ground. But be this as it may, I am satisfied that some plants are *well*, if not *best* manured with their own leaves. Some years ago, Col. Carr, of the Bartram Botanic Garden, sent me a bulb of *Crocus scrotinus*, which increased very slowly for several years; but letting it remain on the same spot it has gradually become

more productive, and now I think it increases as fast as any of the other kinds. A similar remark would apply to *Scilla sibirica;* and latterly I refrain from shifting them from one place to another, when I have occasion to reset them. Now if these observations are correct, it might be well to *dig in* the leaves of the tulip and hyacinth."

"* * * * Pine knots are almost imperishable; and I have heard of oak lands far from where pines were growing, that when cleared, the plow turned up pine knots. There are millions of acres, however, were no pine knots were ever discovered; and where oaks, as far as we can ever know, have grown crop after crop for ages in succession." D. T.

Dictamnus Fraxinella.

Dictamnus Fraxinella, from Germany, is one of the finest of border plants. Stem between two and three feet high: on the lower half, leaves, like those of the ash tree—on the upper half, *flowers*, showy, abundant, with red and white striped; but as it is easier to copy than to compose, let Loudon speak:—"The whole plant, especially when gently rubbed, emits an odor like that of lemon peel; but when bruised, it has something of a balsamic scent. This fine scent is the strongest in the pedicels of the flowers."

Another sort with white flowers is desirable, as contrasting with the former, and botanists have tried to erect it into a separate species as *D. albus*. It would seem, however, that all the difference,—if any, consists in the leaf stalks, the former, according to Prof. Lindley, being "*obscurely edged,*" while the latter is "*scarcely edged at all.*" In the spring these sorts are readily known by the color of their buds; but lately wanting to select one in autumn before the redness on those of the D. Fraxinella appears, and having nothing to guide me but the leaf stalks, I was puzzled to distinguish them. Those on plants which I happened to know were the *white* and the *red*, were as much alike as two peas; and and in truth what is the difference between "obscurely edged" and "scarcely edged at all?"

Seedling Fraxinellas in my borders vary considerably in color, that is, from *deep* to *pale* red. There has been in none of them, however, any near approach to white. D. T.

Transplanting Trees.

If fruit trees were not tenacious of life, but very few could survive the treatment which they often receive. It is not uncommon for a farmer to go many miles in bright sunshine for a load of trees; and without protection or covering of any kind, keep the roots exposed for a day or two. The earliest departure from this negligent custom that has come to my knowledge, was by the *Princes* of Flushing. The roots of trees and shrubs that left their nurseries were dipped into soft mud, and then dusted, which coated every fibre, and excluded the sun and air. Of the importance of this operation, I have been so well satisfied that in transplanting trees only from the nursery into the fruit garden, we have taken this precaution; and even in the driest seasons very rarely lose a tree.

But though mudded, trees or shrubs that arrive from a distance, in most cases would be benefited by a second coat, and I intend never to plant another without it. Care should be taken however, that the mud be of the right consistence; for if too thin or too thick, it will be of less value. It is much easier to prepare it by making the soil very fine before the water is applied; and the mortar should be thoroughly worked before using. In regard to the dust, I prefer that in which finely divided horse manure forms a liberal proportion. D. T.

Planting.—"Is it Extravagance?"

Said one of my neighbors to me this morning—"Gen. S. says I am setting a bad example and encouraging extravagance, by the large amount of time and expense I am devoting to improving and ornamenting the few acres of ground around my home."

My neighbor to whom I first referred, is an active and successful business man, and having accumulated more money than he needs in business and for his current expenses, has come to what seems to me the very commendable decision, instead of hoarding up his accumulations, to expend his surplus, or a portion of it, on some few acres of finely located grounds in the midst of one of the flourishing villages of Western New-York. In order to which he has laid them out in scientific order, brought in and planted the choicest selection of trees from our forests; almost every desirable fruit tree and beautiful shrub found in any nursery, from Boston and Long Island to Rochester; and besides he has planted every thing with a care that I have never seen equalled, and watches and cultivates them continually with the same untiring faithfulness. The consequence is that every little cottage around, is beginning to feel the effect of his spirited example, and some of our common laborers have made by it the discovery that the few minutes of spare time usually devoted to lounging about the villages, will be ample, if judiciously employed, to make the few rods of ground around their humble dwelling, furnish as cooling shade trees, as magnificent and wholesome fruits, and as delicious strawberries, and as luxuriant vegetables.

Now permit me to ask, do not such results reflect high honor upon any man who has the public spirit to produce them? And is not the cultivation of the productions of the earth in the *best manner*, the privilege and the duty of man?

Does my neighbor deserve the rebuke he received? WAYNE. *Palmyra, N. Y., Dec.* 4, 1849.

[We may add to the preceding, that those who find fault with the extravagance of ornamental and useful planting, are not unfrequently the very persons who are expending ten times the amount in costly dwellings, extravagant furniture, and splendid equipage. An extra thousand used up to make a showy house, will not in reality produce so gratifying a show, nor so much real external pleasure, as one hundred judiciously spent in planting ornamental trees and shrubs. EDS.]

The Fire-Blight.

EDS. CULTIVATOR—I believe that the diagnosis of the disease called fire-blight, which afflicts our pear trees, both in nursery and seed bed, has never been satisfactorily understood. Thus far, it has been a serious drawback on the successful growing of both, often causing the death of thousands of trees in a season, thus blasting the hopes and prospects of the grower. When I first commenced the nursery business, there was no such thing known in the vicinity, and the first I ever saw of it was on the leaves of a pear tree called Soldat Laboreur, which was procured from a nursery on Long Island. It was set in a row of pear seed. In autumn the next year, it

appeared sickly, the leaves being covered with the leaf-blight. These I noticed particularly, as being something unusual. On the same plot of ground I had 80,000 pear seedlings, growing in a fine thrifty state, and had always raised good stocks in previous years. A few days after I noticed the peculiar affection of this pear tree, there occurred a storm of wind and rain from the southwest, and in a few days the disease showed itself on the seedling rows, diagonally across, and in the exact direction that the wind was blowing during the storm, from this tree; and from this it spread each way, until the whole of my seedlings were affected, and lost their leaves. This occurred so late in the season, that the trees were not killed by the winter. The next spring they were set in nursery rows. The blight again showed itself earlier than the previous year, and the consequence was that two-thirds perished, from the cause of their being deprived of their leaves too early, before the wood had sufficiently ripened to withstand the effects of the frost. It had become so prevalent that the lower leaves on standard trees were affected; and the seedlings growing on the same premises were killed outright, on account of its commencing so early. It was also communicated to quince stocks which were deprived of their leaves, and it was found impossible to bud them in consequence.

I am satisfied that it is caused by a species of fungus, the seeds of which are carried by the wind and lodged on the surface of the leaves, but need moisture to a certain degree, and warmth, to promote vegetation. On close examination of the spots, the main part seems to lie beneath the surface of the leaf; with reddish veins running in various directions, and when there are a number of spots on one, the veins seem to occupy the whole; but probably the spots cause a disarrangement of the functions by poisoning the juices, rendering them useless.

In another nursery in this vicinity, there were pear trees which were attacked while making their first year's growth from the bud. These trees stood near the middle of the nursery, along the border of which were growing young pear stocks, in a bed more than fifty rods in length, on the east side. The disease on these stocks, commenced directly opposite to this section of budded trees, and extended each way, until the whole were deprived of their foliage. All this goes to show that it is contagious; consequently, this year, by way of experiment, I concluded to plant my pear seeds far away from the influence of any other nursery or pear trees, by which the disease might be communicated. My experiment has been attended with the best results; for I have succeeded in raising as fine healthy stocks as any nurseryman would wish to see; not a spot of the blight has shown itself. My ground has had no extra preparation, except such as ground should receive, in order to grow a good crop of corn. I now suggest that every nurseryman who has hitherto failed in raising stocks, in consequence of this disease, try this experiment, and communicate the results. I. HILDRETH. *Big Stream Point, November 2*, 1849.

Winter Pears.

Fruits are variable in quality from two causes. One is from liability to be easily affected by soil, culture, and other similar influences; and the other results from the effect of *temperature*. The former is exhibited remarkably in the *pear*, which is almost proverbially variable in quality; and the latter is more particularly observable in the *peach*, the later varieties of which often wholly fail as to excellence at the north, while the earlier sorts, whose periods of ripening are not thrown into the colder parts of autumn, are more uniformly good.

Winter pears suffer in quality from both causes. Like other pears, unless they grow in a good deep soil, they cannot perfect their fruit. And, unless the season is sufficiently long for their maturity, they will be deficient in flavor. The difference, however, between good and bad cultivation, independent of the season or climate, is very great. The best treatment, even under an unpropitious sun, will generally give us much better winter pears, than the most favorable skies without it. No person should even think of raising winter pears of most varieties, at the north, without giving them the best cultivation.

The following successful experiment with late ripening pears, is copied from the *Family Visitor* a new scientific and miscellaneous paper of great value, edited by Prof. KIRTLAND and others, of Cleveland, Ohio:

"While alluding to the progress of our pear crops, from year to year, we have occasionally observed, that while the spring and the first month of summer, were attended with a favorable supply of rain, the earlier varieties of pears, as the Citron des Carmes, [Madeleine,] Dearborn's Seedling, Bartlett, &c. rapidly develope in size, and ultimately ripen in high degrees of perfection. A long protracted and severe drouth has several seasons commenced about the middle of June or early in July, and continued perhaps till the period for the growth of vegetation had passed. Whenever this occurred, the later ripening pears have failed to attain their wonted flavor, and have often been inferior in size —particularly on trees standing on dry and gravelly soil.

"During the last two seasons, we attempted to obviate the unfavorable impression of dry weather, and selected, for the purpose of experiment, trees of the Lewis, Winter Nelis, and Easter Beurre— all of which stood upon the *dry ridge* that runs parallel to the lake, in Rockport, five miles from this city.

"Moderate supplies of the necessary elements of nutrition for the pear were repeatedly applied, the surface of the ground was mulched or shaded, either with bones, brush, or litter, and the earth was frequently dug with a spade.

"This course, in our view, was furnishing them with a *a rich, moist soil*, and *high culture*.

"The specimens of the Lewis and Winter Nelis, from two trees thus managed, could hardly be surpassed in delicacy and rich flavor by any of the most popular varieties of summer and autumn. The fruit from the third tree, an Easter Beurre, measures in its greatest circumference, *eleven and a quarter inches*, and in its shortest, *ten and a-half inches*. By proper attention, this fruit will, doubtless, ripen in the finest perfection at the close of the winter."

VERBENAS.—A correspondent of the Horticulturist at Washington City, states that he has been most successful in wintering *Verbenas*, by simply covering them with a hot-bed frame. It was placed over them just as they stood; those which were taken up and transplanted under the frame mostly failed. This protection would not be sufficient for the winters further north.

Mankind are very odd creatures. One-half censure what they practice, the other half practice what they censure.

The Veterinary Department.

Black-Leg in Cattle.

Sometime since we received a request for information in regard to a disease in cattle called black-leg. Not being practically acquainted with the disease, we submitted the request to Dr. DADD, of Boston, who has obligingly furnished us with the following remarks. Dr. D.'s system is in some respects new to us, and is probably so to some of our readers. We are not prepared to offer an opinion in regard to his peculiar views, but leave them to fair consideration. EDS.

EDS. CULTIVATOR—Before I answer the inquiries of your correspondent, permit me to give you the outlines of our phynological or reformed practice and theory of disease. We contemplate the animal system as a perfect piece of mechanism, subject to life and death; that while the vital power has free and unobstructed action, the animal is in a physiological or healthy state; but when by any means the vital power is obstructed, by over feeding, exposure, &c., it is in a diseased or pathological state.

We recognise a conservative or healing power in the animal economy, whose unerring indications we endeavor to follow. Our system proposes, under all circumstances, to restore the diseased organs to a healthy state, by co-operating with the vitality remaining in the organs, by the exhibition of sanative means; and under all circumstances, to assist and not oppose nature in her curative process.

Poisonous drugs, blood-letting, and processes of cure that contemplate destruction of parts, or in other words, act pathologically, cannot be used by us. The laws of animal being are physiological; they never were or ever will be pathological, hence we co-operate with nature and nature's laws.

It is clearly evident that disease is an unit—that all its different manifestations depend on local or constitutional peculiarities. In the animal, there are numerous tissues to be obstructed; and if the disease were named from the tissue, it would have as many names as there are tissues. If it were named from the location, it would have as many names as there are locations, as horn-ail, black-leg, quarter-evil, foot-rot, &c. If it were named from the symptoms, it would be numberless, and boundless. It is of no use to decide what particular nerve, blood vessel, or muscle is diseased, seeing that the proper and only rational treatment consists in acting on all the nerves, blood vessels and muscles. But suppose we do ascertain exactly the location of the disease, have we any specific that will act upon it, other than through the healthy operation of nature's secreting and excreting process? We answer, that there is no such thing as a *specific*, in the popular sense of the term. Any medicine that is good for a practical symptom in disease, is equally good for any and every symptom, provided its action is physiological.

The indications of cure, are to relax spasm, as in lock-jaw, stoppages of the bladder, or intestines, obstructed surfaces, &c. To contract and strengthen weak and relaxed organs, as in general or local debility, diarrhœa, scouring, lampas, &c. To stimulate inactive parts, as in the black-leg, quarter-evil, foot-rot, &c., where chemical agency has gained the supremacy over vital action. To equalise the circulation, and distribute the blood to the external surface and extremities, as in congestions. To furnish the animal with sufficient nutriment to build up the waste that is continually going on, and prevent friction. No matter what the nature of the disease, the treatment should be conducted on these principles. Finally, to relax, to contract, to stimulate, and to furnish the system with the proper materials for nutrition, constitute the whole *modus operandi* of the reformed practice.

With these preliminary remarks, we will return to your subscriber's communication, in which he states that he has lost several calves within a few days by black-leg, and knowing of no medical treatment for the disease of any value, has searched the back columns of *The Cultivator* in hopes to find something recommended as a specific, [there is none in existence] but has found nothing except what is contained in the March number for 1847, vol. 4, p. 98. Regular and good feeding is there recommended as a preventive.

Good and judicious feeding, with proper attention to the management of calves, is one of nature's preventives. Dr. White, a veterinary surgeon of London, observes—"In horses or cattle, it is probable that almost all diseases may be prevented by judicious management with regard to feeding, breeding, rearing and exercise." Again, Dr. Dixon observes—"Nature is ever busy, by the silent operations of her own forces, endeavoring to cure disease. Her remedies are air, warmth, food, water and sleep; their use is directed by instinct, and that man is most worthy of the name of physician, who most reveres its unerring laws."

Black-leg, quarter-evil, joint murrain, black-quarter, and dygangrene, are analogous: by the different names is meant their grades. In the early or mild forms, it consists of congestions in the veins or veinous radicels, and effusions in the cellular tissue, when chemical action overpowers the vital and gets the ascendancy, it assumes a putrid type, and gangrene is the result, or a destruction of organic integrity. Its proximate cause exists in any thing that can for a time, intercept the free action of the vital machinery. Its direct cause may be found in over-feediing, exposure in wet situations. The milk of diseased cows, is a frequent cause of disease. Men who are engaged in preparing cattle or calves for the market, attempt to fatten without any regard to their general health, climate, the quantity of food, its quality, or the state of the digestive organs. They are very apt to think that as long as the animal has what they term "good food," and just as much as they can cram into the stomach that they must be healthy and will fatten, when in fact, too much food oppresses the stomach, impairs and overworks the digestive organs, and converts the food into a serious cause of disease. Whenever the digestive powers are overtaxed, the food accumulates in the stomach and its appendages, and being submitted to the combined action of heat and moisture, gas is evolved which distends the viscera, interferes with the motion of the lungs and diaphragm, presses on the liver, and interrupts the circulation of the blood through that organ, seriously interfering with the bile-secreting process. This is not all, the gas evolved from the putrid mass in the stomach, is absorbed, and enters into the cellular structure, hence emphysema, &c.

Your correspondent observes—"My calves are well fed and in good order, and those that fell victims were in the best condition." The old maxim, an ounce of preventive is worth a pound of cure, is true; and I have no doubt your correspondent, if he makes the trial, will find it more convenient and less expensive. The reason why disease manifests itself in the extremities, is because they are more exposed to damp ground, and because the blood, in

returning to the heart, has a kind of up hill work to perform, hence it accumulates in the veins. Now, although we observe alarming symptoms in black-leg, it is no more a disease of the legs, than it is of impaired digestion, absorption, secretion, and circulation, for the whole functions are involved, and the cure of black-leg is the cure of all other maladies.

There is no particular treatment for black-leg, other than we have already alluded to, viz., to impart healthy action to the whole animal system, and to remove the direct cause. If the animal has been over-fed with a view of fattening, reduce the quantity of food, give mucilage of slippery-elm, and rub the leg with tincture of capsicum.

Our advice to farmers is, let your animals have their meals at regular hours, in sufficient quantity, (and not a particle more;) if they waste it, put less before them each time, until they eat the quantity given, without waste; let them have good beds of straw on which to rest their limbs; do not permit them to breath the emanations that arise from the dung and urine; keep them clean, and avoid undue exposure. Finally, govern them in a spirit of kindness and mercy, and there will be little foothold for disease. G. H. DADD. *Boston, Jan.* 1850.

Blind Teeth in Horses.

EDS. CULTIVATOR—Some two or three years since, I did myself the pleasure of giving you my experience on the subject of Wolf or Blind Teeth; since which time no actual case has occurred under my observation till lately. I now send you enclosed a Wolf tooth, extracted from the upper jaw of a horse of mine, immediately in front of the grinders. I had observed a considerable degree of inflammation in the eye of this horse, and a thin film was gradually forming, which threatened its destruction. I tried various remedies in vain, when I discovered the Wolf tooth, situated as above described, which being extracted, the eye rapidly recovered, and is now entirely well.

As the existence of these teeth, and their effect upon the eye of the horse has been doubted by scientific men, I send you the tooth and state the facts, leaving it for science to say what is the connection between the cause and the effect. WM. LITTLE.

CARBON AS FOOD FOR PLANTS.—Mr. J. W. ROGERS says he was refused the gold medal offered, a few years since by a public body in Ireland, because he had set forth that carbon, given to the roots of plants, would invigorate them. He observes—'This was then deemed a fallacy, but I am happy to say, any one may now allege the same without being laughed at. At that period, a popular chemist had set it down 'that all plants depended upon the atmosphere for the carbon they contained,' but the leading chemical writer of the present day says very differently. Brande states, in the 6th edition, published 1848, that 'although the accumulation of decaying matter which chemists call *humus* performs an important part in vegetable nutrition, it is not by its direct absorption and assimilation, but by its influence as a source of carbonic acid, which is partly taken up by the juices of the roots, and partly evolved into the atmosphere, so that plants, independent of their leaves, can thus receive carbonic acid."

The idle man is the devil's hireling, whose livery is rags, whose diet and wages are famine and disgrace.

He is a fool who makes his doctor his heir.

Business Notices.

Our Premiums.

It should be remembered that competition for the following list of Premiums, payable in Books, or in Implements or Seeds from the Albany Ag. Warehouse, is open till the 20th of March next, viz:

1. To the one who shall send us the largest number of subscribers to the CULTIVATOR for 1850, with the pay in advance, at the club price of 67 cents each, previous to the 20th of March next, the sum of FIFTY DOLLARS.
2. To the one sending us the next largest number, the sum of FORTY DOLLARS.
3. To the one sending us the next largest number, the sum of THIRTY DOLLARS.
4. For the next largest list, the sum of TWENTY DOLLARS.
5. For the next largest list, TEN DOLLARS.
6. For the FIVE next largest lists, each FIVE DOLLARS.
7. For the TEN next largest lists, each THREE DOLLARS

In addition to the above, a copy of Thomas' "AMERICAN FRUIT CULTURIST, price one dollar—a very valuable work just published—to every agent who sends us Fifteen subscribers and $10, and who does not obtain one of the above prizes.

The American Fruit Culturist.

This work has been sent by mail, only to such Agents as have requested it. Many have sent us 15 subscribers, entitling them to the work, who have said nothing about its being sent; and we have taken it for granted that they intended to procure more subscribers, and to be competitors for a higher prize. We therefore give notice that the work will be sent by mail only where specially requested, and that we will send it in any manner desired, and at any time, to any person who has sent 15 or more subscribers for this volume.—The postage on the work is only 21½ cents, to any post office in the United States.

To Postmasters and other Agents.

Some of our Agents seem not fully to understand the terms of *The Cultivator*, to clubs; we state,

1. That in forming clubs, it is not necessary that all the papers for one club should go to one post office. They will be sent to as many different offices as required.
2. It is not necessary that for a club of seven or fifteen, all the copies should be ordered at once. Any one will be entitled to seven copies after paying $5, though he sends but one at a time. For instance, when a Postmaster sends us $2 for two copies, he will be entitled to five more copies for $3, making 7 copies for $5. So when an Agent sends $5 for 7 copies, he will be entitled to 8 more copies for the second $5, making 15 copies for $10.
3. When an Agent has sent $5, for 7 copies or $10 for 15 copies, he will be entitled to any *additional* copies he may order at the rate of $2 for three copies.

Postage of the Cultivator.

In answer to several inquiries, we repeat the statement so often made, that *The Cultivator*, when sent without cover, is subject to *newspaper postage only*—that is, one cent within the State, and 1½ cents if out of the state, and over 100 miles from Albany. This question has been several times settled by the different Postmaster Generals. For Certificate of this, see Cult. for 1848, page 97.

Back Volumes of the Cultivator.

We can still furnish entire sets of *The Cultivator:*

First Series.—Ten vols., quarto—Price, bound, $10—Unbound, $8.

New Series—Six volumes, octavo, now completed—price, bound, $7.50—unbound, $6.

☞ Any of the Volumes, *except the one for* 1848, can be had separately.

The Horticulturist,

AND JOURNAL OF RURAL ART AND RURAL TASTE.

This popular work is edited by A. J. DOWNING, author of "Landscape Gardening," "Designs for Cottage Residences," &c. &c., and is published by the proprietor of "*The Cultivator*," each No. containing 48 pages, embellished by an engraved frontispiece and numerous other illustrations, at $3 a year. Three vols. are completed, and the fourth is now in course of publication. Price per vol., bound, $3.50—unbound, $3. When two or more vols. are taken, a discount of 50 cents per vol. will be made.

Franking Privilege of Postmasters.

We notice that many Postmasters, who are Agents for *The Cultivator*, pay the postage on their letters to us. It will be seen by the following letter from Hon. F. H. WARREN, Assistant Postmaster General, that they are entitled to the privilege of *franking* their remittances:

Post Office Department,
Appointment Office, Dec. 31, 1849.

Sir—The Postmaster General, after careful consideration of the question as to the right of Postmasters that have the privilege of franking, to frank letters to publishers of newspapers covering money for subscriptions or the names of subscribers, has decided, that when the Postmaster is Agent for the publisher, he has the power to frank such letters, and his Agency will be presumed from the fact that he franks them. As no Postmaster has any authority to frank these communications but when he is such an Agent, it is proper to regard him as acting in that capacity when he so conducts, until information is received to the contrary. In doing this business, the Postmaster must be regarded as entirely the Agent of the publisher, and not of the Department. FITZ HENRY WARREN.

Notes for the Month.

COMMUNICATIONS have been received, since our last, from Gleaner, W. L. Eaton, G. H. Dadd, S., Levi Bartlett, A. B., A Farmer, Agricola, Argus, A Subscriber, Mary, Calvin Stow, C. G. I., L. Durand, Jonathan Wood, C. E. G. (all too late for this month,) J. B. Garber, S. Tillotson, J. J. C.

BOOKS, PAMPHLETS, &c., have been received as follows:

Proceedings of the St. John (N. B.) Agricultural Society for 1849, from ROBERT JARDINE, Esq., President.
Northern Spy and Melon Apple, from ELWANGER & BARRY.
Belcher's Farmers' Almanac, for 1850, Halifax, N. S., from C. H. BELCHER, publisher.
Proceedings of the Seneca County (N. Y.) Agricultural Society, for 1849, from JOHN DELAFIELD, Esq., President of the Society.
Sherwood's Manual for Magnetizing, with the vibrating magnetic machine, and for the magnetic treatment of diseases, from the publishers, FOWLER & WELLS, New-York.
New and Improved Poudrette of the Lodi Manufacturing Company, a pamphlet just issued by that company, 66 Dey-street, New-York.
Report of the Ohio Nurserymen and Fruit Grower's Convention, held at Columbus, Dec. 5, 1849.

PROF. JOHNSTON'S ADDRESS.—We give in this number, the address of Prof. JOHNSTON, delivered before the N. Y. State Agricultural Society at Syracuse. It is hardly necessary for us to invite the attention of our readers to this document; we presume it will be read with avidity by all who have the opportunity; and like other emanations of the same prolific pen, it will be found replete with useful facts and suggestions, beautifully and forcibly expressed. To make room for the address entire, we have been obliged to use small type; but we think the advantage of having the whole in a body, will overbalance this objection.

STATE FAIR.—It will be seen, by reference to the doings of the State Agricultural Society, that it has been resolved to hold the next Fair at Albany. We trust that our citizens will take timely hold of the matter, with a determination to make it, as it can be made, the best exhibition ever held in America. The Fair will be held on the 3d, 4th, 5th and 6th days of September.

PROF. JOHNSTON'S LECTURES.—These lectures, of which a programme was given in our last number, were commenced at the Assembly Chamber of the Capitol on the evening of the 4th ult. They have been attended by large audiences, composed of several of the prominent members of the Legislature, and many of our most intelligent citizens—all of whom have been deeply interested and gratified with the admirable manner in which the various subjects have been treated. It is expected that the lectures will be printed shortly, and we shall endeavor to give them, or a portion of them, as soon as practicable, through our pages.

☞ The late hour at which we received the copy of Prof. JOHNSTON's Address, and our desire to present it entire this month, has rendered it necessary to omit several communications intended for this No., as well as to curtail very considerably the department devoted to Horticulture.

☞ If "A GLEANER" will furnish us his name, we will address him privately on the subject of his communication.

"H. C. W."—Our correspondent, Hon. F. HOLBROOK, writes—"I wish you could induce 'H. C. W.,' of Putnam Valley, to try his hand oftener at writing for the Cultivator. He has a beautifully graceful and strong style, and I want to hear oftener from him. His light must not be hid under the the bushel nor his talent wrapt in a napkin." We earnestly second these sentiments, in which we will venture to say we are joined by *all* our readers.

NORTHERN SPY AND MELON APPLES.—We are indebted to Messrs. ELWANGER & BARRY, of Rochester, for handsome specimens of these esteemed new varieties of apples. The Melon being in perfection at the time of its arrival, (first January) we had a better opportunity for testing its qualities than we have had before, and unhesitatingly pronounce it an excellent apple. The Spy is not yet ripe, it being a late spring fruit.

ALBANY PRUNES.—We have received from Mr JOHN LOSSING of this city, specimens of excellent dried prunes, produced by trees raised by him from seed brought from Germany.

SAXON SHEEP.—In our last number, we noticed an importation of Saxon sheep by Messrs. CATLIN & SMITH. We have since had the opportunity of seeing these sheep, at the farm of Mr. CHARLES B. SMITH, Wolcottville, Ct. In several respects they are quite different from most Saxons we have seen. They are evidently the result of extraordinary skill in breeding; and as sheep producing the finest quality of wool, seem to approach nearly to a standard of perfection. The ewes are from two to three years old. They are handsomely formed—have, generally, full briskets and broad loins. Their weight is from eighty-five to one hundred pounds each. The rams are larger, in the usual proportion. What will be their weight when fully grown, we cannot say; they are only yearlings, (lambs of 1848) and of course may be expected to become considerably heavier.

These sheep have not only very fine wool, but they are especially remarkable for the *evenness* of their fleeces; they have no coarse spots—the wool being fine *all over the body*, with but little variation in quality. We have samples taken from the neck, shoulder, middle of the back, hip, and thigh of the same sheep, which will give a better idea of the uniformity of the fleece than anything we can say. The wool is generally thickly set; and we should think the weight of the fleeces, cleaned as has been customary with Saxon wool in this country, would average three pounds. Their appearance indicates good health and fair constitution. We have no doubt they will prove a very valuable addition to the sheep-stock of the country, and we trust the enterprising importers will find their investment in all respects satisfactory. We should be pleased to show the samples of wool to persons who may wish to see them.

FINE FOWLS.—Our attention was lately called to a lot of beautiful game fowls, (about twenty pair,) bred by Mr. T. C. ABRAHAMS, of West Troy, and which were about being sent to different parts of the country. We mentioned on a previous occasion, that Mr. A. had bred a portion of his fowls from a cross made with the English pheasant. He still continues this stock, in which many of the traits of the pheasant are distinctly visible. He has, also, several other varieties, one of which was brought from Mexico, and is said to be the same that SANTA ANNA held in great esteem. Another is the Earl Derby variety, so celebrated in England, characterised by the black breast, and purple band across the wing, with yellow legs.

WASHING SHEEP—Our correspondent "S. W.," of North Easton, Washington county, New-York, writes—"In conversing, recently, with a wool-grower of considerable experience, he gave me his mode of washing sheep, which is to use a wooden

vat, with a small stream of water running into it just large enough to supply the waste in slopping over and in taking out the sheep. In this way the heat of the sheep warms the water, and the oil and soapy matter from the wool converts it into a kind of *soap suds*, which cleanses the wool far more effectually than clear, cold water. I would like to know how this idea squares with the experience of wool-growers generally."

SALE OF THE BATES SHORT-HORNS.—GEO. VAIL, Esq., of Troy, informs us that he learns by letters he has just received from England, that the sale of the celebrated herd of cattle of the late THOMAS BATES of Kirkleavington, Yorkshire, will take place in April or May next. The herd consists of about seventy head of bulls, cows and heifers, all of which will be sold without reserve.

THE VAN ALLENS.—We had the pleasure, last week, of entering on our books, a club of seven subscribers, all named VAN ALLEN. They all reside in one neighborhood, in Bethlehem, in this county.

PROFITABLE SHEEP.—Mr. DAVID ST. JOHN, of Bern, in this county, bought fifty sheep in July, 1848, at $1.12½ each—or $56.50; of these, he wintered forty-nine. There were twenty-three ewes in the lot, which in 1849, reared twenty-five lambs. The same season, the forty nine sheep sheared 228 pounds of wool, of which 213 lbs. were sold for the gross amount of $48. He sold in June last, to the Albany butchers, nineteen old sheep, (wethers) and ten lambs for $48; thus making the gross amount of sales, $116—and he has thirty old sheep and fifteen lambs (yearlings,) or forty-five in all, left, which are worth more than the first stock.

☞ Mr. L. B. Maltby, of Bristolville, Trumbull county, Ohio, writes—"I would as soon think of doing without my bread, as without The Cultivator. Five hundred dollars would not cover the benefit I have derived from the articles contained in it, on the dairy alone."

☞ A couple of pages of "Monthly Notices," and "Notices of New Publications," in type for this No., are necessarily omitted.

Prices of Agricultural Products.

New-York, Jan. 21, 1850.

FLOUR—Genesee, per bbl., $5.50*a*$5.62½—Extra Genesee and Ohio, $5.75*a*$6.50.

GRAIN—Wheat, Genesee per bush., $1.23*a*$1.28—Common and good Ohio, $1.00*a*$1.11. Corn, Northern, 63c.—Southern and Jersey, 61c. Rye, 62½c. Barley, 60*a*61c.—Oats, 42*a*45c.

BUTTER—best, per lb., 19*a*22c.—Western dairy, 15*a*17c.

CHEESE—per lb., 6*a*7c.

BEEF—Mess, per bbl., $8.50*a*$9.50—Prime, $6*a*$6.75.

PORK—Mess, (new) per bbl., $11.25*a*$11.50—Prime, $9.

LARD—per lb., 6½c.

HAMS—per lb., Smoked, 7*a*9c.

HOPS—first sort, per lb., 17*a*18c

COTTON—Upland and Florida, per lb., 12½*a*14c.—New Orleans and Alabama, 12¾*a*14½c.

WOOL—(Boston Prices.)

Prime or Saxon fleeces, per lb	40*a*43c.
American full blood Merino,	35*a*37
do half do	30*a*32
do one-fourth do, and common,	27*a*29

REMARKS—The weather at New-York has been unfavorable for trade, and the market is rather heavy. Holders of flour anticipate an advance by the next steamer, and are, consequently, disposed to hold to present prices. Corn is firm, with a moderate supply. In provisions, pork is in moderate demand, though prices tend downward.

NEW-YORK CATTLE MARKET.

Monday, January 21.

Offered, 1,200 Beeves, (340 Southern, the remainder from this State,) 60 Cows and Calves, and 5,500 Sheep and Lambs.

BEEVES.—The inclement state of the weather to-day prevented the usual attendance of trade, and the market consequently closes very dull. Prices, however, show no falling off. We quote retailing qualities at $6. It was estimated that full 400 head would be left over unsold.

COWS AND CALVES.—Market dull und inactive. Sales at from $22.50 to $39*a*$40. Unsold 15.

SHEEP AND LAMBS.—Sales at from $1.75 to $3 to $5.75, which is a slight advance. 500 unsold.—*Tribune.*

BRIGHTON CATTLE MARKET.

Thursday, Jan. 17.

At market, including those remaining from last week, 950 Cattle of all descriptions—37 remain unsold at this time,—Friday morning, 10 o'clock.

Prices of Beef Cattle were much as last week. Drovers asked more in the morning, but it was no go. A very few at $6.25. Good at $5, and very good at $5.25*a*$5.75. Lower grades from $5 down to $3.50, as in quality. Some of the salesmen reported a little more animation, and a shade higher price, upon ordinary cattle. Western drovers reported heavy losses.

SHEEP AND LAMBS, 2440 at market.

Prices. $1.75, $2.00, $2.25, $2.50, $3.00, $3.50, $4.00, $5.00.

SWINE. But few at market. No change in price—4½*a*5½ at wholesale, and 5*a*6 at retail.—*Plowman.*

Highland Nurseries, Newburgh, N. Y.

Late A. J. Downing & Co.

20,000 Apple Trees of the most approved varieties, for sale, (of *extra size*, from 8 to 12 ft. high, and 3 to 5 years' growth,) at $20 per hundred.

Persons wanting trees to sell again, will be dealt liberally with.

Feb. 1, 1850—3t. A. SAUL & CO.

A Devon Bull for Sale.

THE subscriber offers for sale his full bred Devon Bull, from the best stock in the country.

Any one wishing to purchase such an animal will do well to call at an early opportunity. JOHN E. COWLES.

Farmington, Ct., Feb. 1—1t.

Selling off to Close the Business.

LINNÆAN BOTANIC GARDEN & NURSERY, late of WM. PRINCE, deceased. Flushing, L. I., near New-York. WINTER & Co., Proprietors.

In consequence of the decease of the Junior, and of the advanced age of the surviving partner, the entire stock of this establishment, comprising every description, including the newest and choicest varieties of

Fruit and Ornamental Trees,

Shrubs, Vines, Plants, Roses, &c., will be disposed of *for cash*, at a REDUCTION OF 25 TO 50 PER CENT from the usual prices, according to kind and quantity. Young Stock, Ornamental Shrubs, Pœonies, Herbaceous Plants, &c., *very low* by the quantity.

Descriptive Catalogues gratis on application, post paid.

Feb. 1—1t.

Fruit Scions for 1850.

THE subscriber can furnish scions for grafting of the choice fruits of Western New-York. They can be sent by mail or express, and when possible, I will send sample apples:—

"Northern Spy," apples,
"Norton's Melon,"
"Early Joe,"
"Swaar,"
"Esopus Spitzenberg,"
"Fameuse,"
"Pomme Gris,"
"Baldwin,"

And the "Wagener" variety, to which the State Society awarded a premium of $5.

Price for Scions one dollar per hundred.

Applications, post paid, shall have immediate attention.

Rochester, Feb. 1.—1t.* JAMES H. WATTS.

Take Notice.

THREE Months' Extra Pay and One Hundred and Sixty Acres of Land will be procured for all who enlisted for five years, or during the war of 1812, and for all, including Volunteers who served in Mexico, and for the heirs of all who have died in the service.

Information will be given to relatives, Free of Charge, by writing to G. F. LEWIS, Detroit, Michigan, (postage paid.)

Those who do not know what became of their friends, write when and where they joined the army. Feb. 1—3t.*

Poudrette.

THE LODI MANUFACTURING CO., offer their new and improved Poudrette, for sale at their usual rates:—1 bbl. $2—3 bbls. $5, and $1.50 per bbl. for any quantity over 7 bbls., delivered free of expense on board of vessel in New York. At the Factory, where vessels drawing 8 feet water can come, it will be sold at 25 cents per bushel.

The expense per acre in manuring corn with Poudrette, will amount to about $4, calculating 25 cents per bbl. freight, and all the necessary labor included. On land previously manured, or on good sward land, one gill to the hill is sufficient—on poor ground, a good crop can be raised by one gill at planting, and one at the last hoeing. The cost of the labor alone in manuring corn in the hill with barn yard manure, will amount to more than the first cost of the Poudrette, with freight and all charges added; and the effects of Poudrette are quicker, more vigorous, and the corn reaches maturity earlier. A fair trial, *however small*, is respectfully solicited.

A pamphlet containing instructions for use, certificates from some of the first Agriculturists in the United States, and much valuable information will be sent *gratis*, to any one applying (*post paid* if by letter,) to "THE LODI MANUFACTURING COMPANY, 66 Dey street, New-York." Feb. 1—4ms.

Lynchburg (Va.) Land Agent.

THE undersigned has on hand, for sale, FIFTY PLANTATIONS, lying in this section of the State—say from two to one hundred and fifty miles from Lynchburg. Prices from three to twelve dollars per acre. Mountain land, from thirty-five cents to two dollars. All communications, post-paid, promptly attended to.

Lynchburg, Va., Feb. 1—2t* BENJAMIN WILKES.

Wanted.

A YOUNG man with a small family to take charge of a nursery, who has some knowledge of farming, and is thoroughly acquainted with the propagation of Fruit Trees.

He must be well recommended as a man of integrity, and to be moral and temperate in his habits. None other need apply.

RUFUS WHITTIER.

Chickopee, Mass., Feb. 1, 1850.—3t.

Highland Nurseries, Newburgh, N. Y.

(Late A. J. Downing & Co.)

THE PROPRIETORS beg leave to inform their patrons, and the public in general, that their stock of

Fruit and Ornamental Trees, Shrubs, Roses, &c.,

For Spring planting, is unusually large and thrifty, and embraces all of the best varieties introduced into notice in this country or Europe; of Apple, Pear, Plum, Cherry, Peach, Nectarine, Apricot, Grapevines, Gooseberry, Currants, Raspberry, Strawberry, &c., &c.

Portugal Quince trees, standards, extra size, each	$1 00
do. do. quenouille, do.	1 00
Angers, (true,) extra	1 00
Trees of the usual size	0 50

Also, *Pears* on Quince, and *Apple* on Paradise stocks, for dwarf trees.

The stock of Ornamental Trees, Shrubs, &c., is very large; and quantities to dealers, or planters on a large scale, will be furnished at greatly reduced rates.

Hedge Plants.

A large stock of Buckthorn, and Osage Orange plants.

Also, a large stock of Rhubarb and Asparagus roots.

The entire stock has been propagated under the personal supervision of A. SAUL, whose long connection with this establishment is some guarantee, from the reputation it has gained, (and the present proprietors are determined to merit,) as to the genuineness and accuracy of the present stock.

Orders respectfully solicited, and will receive prompt attention, which will be carefully packed and shipped to any part of the Union or Europe.

Catalogues furnished gratis to post-paid applicants.

Feb. 1, 1850—3t. A. SAUL & CO.

To Fruit Growers and Nurserymen.

Spring of 1850.

THE subscribers invite the atttention of Tree purchasers to their stock now offered for sale. By large importations from Europe, and an extensive scale of propagation in their own grounds, they are enabled to offer one of the most extensive and complete assortments, and on the most liberal conditions.

The well known health, hardiness and vigor of the trees grown here, and the undivided and scrupulous attention given to every department by the proprietors, in person, offer great inducements to purchasers.

Standard Fruit Trees,
Pyramidal and Dwarf Fruit Trees,
Gooseberries, Currants, Strawberries, &c.,
Ornamental Trees and Shrubs,
Roses, Dahlias, &c.
Hedge Plants, including large quantities of Buckthorn and Osage Orange.
Stocks for Standard and Dwarf Trees,

And all other nursery articles; besides a large collection of

Green House, Border and Bedding Plants.

Wholesale priced lists sent *gratis* to all post paid applications. A separate catalogue for 1850 of *Roses*, *Dahlias*, and other new and rare articles will also be furnished.

ELLWANGER & BARRY.

Mount Hope Garden and Nurseries, Rochester, N. Y.

Feb. 1, 1850.—1t.

The American Poultry Yard,

BEING a History and Description of Various Kinds of Domestic Fowls, with complete directions for their Management, Breeding, Crossing Rearing, Feeding, and Preparation for a Profitable Market. Also, their Diseases and Remedies. And complete directions for Caponising. Arranged from the best authorities in Europe and America.

Illustrated by numerous original engravings. Forming the most Practical Manual for those who are desirious of raising poultry, that has been published in this country. Price $1, bound.

Published by C. M. SAXTON, 121 Fulton st., New-York,

And for sale at this Office.

Also, Allen's American Farm Book, $1.

Allen's Domestic Animals, 75 cents.

Miner's Am. Bee Keeper's Manual, $1.

Gunn's Domestic Medicine (117th thousand,) $3.

Jan. 1, 1850.—2t.

Stocks, Scions, Evergreens, Strawberry Plants, &c.

B. M. WATSON offers for sale at the *Old Colony Nurseries*, PLYMOUTH, Mass., Stocks of Fruit Trees of first rate quality, suitable for spring grafting and budding in the coming summer, at the annexed prices per 1000. Apple, 1 year, strong, $5; 3 years, transplanted, $10—Pear, 1 year, $8; 2 years, $15; 3 years, transplanted $20—Plum, 2 years, $15—Cherry, 2 years, $12; 3 years transplanted, $15—Quince, large and fine, $18; 1 year, strong, $12—Mahaleb, strong, $25—Paradised, strong, $25—St. Jean, (dwarfer) $5 per 100. Ash, Maple, Laburnum, Lime, SpanishChestnut, Poplar, Mountain Ash, Elm, Alder, &c., &c., 4 feet, at $3 to $8 per 100. Arbor Vitæ, Norway Spruce, Scotch Fir, Balsam Fir, Silver Fir, Larch, Red Cedar, 1 to 2 feet, $5 to $10 per 100.

SCIONS. Apple scions, (fine sorts) $1.50 per 100. Paradise cuttings $8 per 1000. Scions of the finest sorts of pear of established reputation (say 30 sorts,) and of other fruits, $2 per 100, $15 per 1000.

STRAWBERRIES. Burr's New Pine, $4 per 100; Boston Pine, $1; Hovey's Seedling, $1; Richardson's Early, Late and Cambridge (fine sorts) $1.50 per doz.; Early Virginia Scarlet, $1 per 100; Jenny's Seedling, $3; Aberdeen Beehive, $5; Swainstone, $3; Myatt's Eliza, $2; Crimson Cone, $2; Black Prince, $5; Deptford Pine, $3; Princess Alice Maude, $3; Keene's Seedling, $2; Willey's Seedling, $3; White wood, $1;—25 cents to $1 per dozen.

Also, Dwarf and Standard Pears, select Shade Trees, Shrubs and Climbers; Weeping Trees for lawns, Roses, Phloxes, Verbenas, Chrysanthemums, and other fine plants for masses, at low prices, of which a priced list will be sent, post paid, on application.

Also, Pear seed of prime quality.

Feb. 1, 1850.—3t.

New Scarlet Verbena---Robinson's Defiance.

J. M. THORBURN & CO., 15 *John street*, *New-York*,

HAVE now ready for delivery, strong plants of the above splendid Verbena, the finest in England, from whence they obtained it last June, fully testing its quality during the summer. The bloom is of the most vivid scarlet, with fine foliage, and so far from being injured by the heat of the sun, was rather improved, and continued a mass of flowers, rapidly covering the ground, while most others were destroyed by the heat, nor ceased to flower in profusion till checked by frost at the end of October—after which, being taken up and removed into the greenhouse, flowered away till December, and is now (January 21) fully out for a long succession of bloom.—It may be seen in perfection very soon by any one who will take the trouble to visit Astoria.

TESTIMONIALS.—*Gardener's Chronicle*, (Dr. Lindley,) Aug. 28.—"Robinson's Defiance" is a most brilliant flower—fine in form and a good trusser—best of its class.

Gardener's Journal, Sept. 4.—"Robinson's Defiance"—beautiful variety—form good—segments of the corolla broad, firm in substance and flat—color, a brilliant scarlet—habit of the plant good, and a free bloomer.

The Gardener, Sept. 18.—"Robinson's Defiance" is a superior variety, the petals are stout, the flower and truss large and well formed—color, a clear vivid scarlet—the plant is a strong and free grower, with a fine foliage and superior habit—we have not seen its equal.

It received first class certificates and the highest commendation at the following exhibitions—"Royal South London," Sept. 15—"Slough," Sept. 21—"Norwich," Sept. 23—"Metropolitan," Sept. 28—and the "Chelsea Society."

The habit of the plant is equally adapted for potting or bed culture, being short jointed with remarkably fine foliage, and a free bloomer. A large Italian vase filled with it at Astoria last summer, was the most striking object in the garden, and was adored by all gardeners and amateurs who observed it. It was first sent out in England in the Spring of 1848 at 7s 6d sterling per plant, but was not successfully imported here till last season.

A good stock of this beautiful Verbena, (*warranted to answer description.*) being now ready to send out, orders will be promptly executed with strong healthy plants at 50 cents each—$5 per dozen—six at same rate—with a liberal discount to the trade when a dozen or more are ordered.

Also the following additional new Verbenas, from England:

ANACREON—large bright rose, good habit and fine foliage, free bloomer and close set, pretty eye.

BARKERII—scarlet crimson, good spreading habit and profuse bloomer.

ROSY MORN—light rosy crimson, large compact truss, good eye and free bloomer—a beautiful variety.

SATELLITE—orange scarlet, exquisite form and trailing habit, well adapted for large pan pots or vases—foliage soft, serrated, and of a feathery style, extra fine—50 cents each—or if the set of *four* is ordered, $1.50—have been proved a season, and fully answer description.

The following approved older sorts, $1.50 per dozen—Beauty Supreme, Flambeau, Fireball, Major Ringgoid, Mestosa, Mary Anne, Othello, Polk, Queen, Roseum Elegans, Smith's Blue Bonnet, and others well adapted for bedding out or in patches.

PETUNIAS—Hebe, Eliza, Beauty of Yorkville, Duke of Bedford and other good sorts—$2 per dozen.

DAHLIAS in dry roots—all the prize sorts exhibited at Castle Garden last October—$5 to $15 per dozen.

☞ Plants of the new Verbenas can readily be sent by mail: by shaking off the soil a half dozen will not weigh over an ounce; by immediate potting on arrival and trifling care, will recruit in three or four days and be in advance and superior condition for turning out in the month of May—of course, much earlier, further south.

Feb 1, 1850—2t.

For Sale,

TWO Short Horn Bull Calves, 1 year old in April next. Both are descended from the bull Yorkshireman—bred by the late Thomas Bates, Esq. In color, one is red, the other red with a little white.

Letters of inquiry, post paid, attended to. J. M. SHERWOOD.
Auburn, Feb. 1—2t.

The American Fowl Breeder,

A New and Valuable book,

CONTAINING full information on Breeding, Rearing, Diseases and Management of

Domestic Poultry,

And instructions concerning the choice of pure Stock, Crossing, Caponising, &c., &c., *WITH ENGRAVINGS.* By an association of Practical Breeders.

The above valuable work is just published by John P. Jewett & Co., Cornhill, Boston, and it is offered at the extremely low price of *Twenty-five Cents* per copy, to bring it within the means of every man interested in Poultry.

☞ *We want 100 Good Faithful Agents,* ☜

To sell this work in every county in New England, New-York, Pennsylvania and the West, in connection with

Cole's American Fruit Book,
AND
Cole's American Veterinarian.

Active and intelligent men can make money at the business.
Address, post paid, the publishers.
JOHN P. JEWETT & CO.,
Cornhill, Boston.

P. S. The American Fowl Breeder is done up with thin covers, and can be sent by mail to any part of the country. Any person sending a quarter of a dollar by mail, *post paid*, shall receive a copy of the book.
Feb. 1—3t.

A New Patent Compressing Churn.

Fig. 1

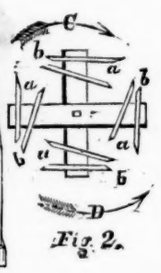


Fig. 2.

FEW of the many recent inventions denominated Churns, have merited the recommendations published by interested parties, and too often the favorable opinion of the press. In fact, not more than one or two of the many kinds have been worthy of being manufactured; the only object of the patentees seeming to have been to hawk about the country selling *Patent Rights* for what they could get, which once sold, ends its existence, so far as the public are concerned, the purchaser of the patents only regretting he ever meddled with it.

On the contrary, our own course has ever been, to sell or recommend only such articles to the farming public, as we know from our long experience in selling and manufacturing, to be well worthy of the recommendations given them through our advertising. The *Kendall*, the *Thermometer*, and the *Common Dash* churns having composed our assortment, for want of better kinds.

Until the improved churn, represented by the cut at the head of this advertisement came to our notice, we have not offered any thing new. This, although a recent invention, has been thoroughly tested during the past season, by a goodly number of dairymen in Chenango and Orange counties, with unprecedented success; so much so, that we hazard nothing in pronouncing it the most desirable churn now before the public.

Its construction is simple, having four pairs of broad blades or beaters all confined together, so set as to pass edgewise through the cream, as represented in fig. 2, (end view.) these floats, when turned in the direction of the arrow *C*, cause the cream to be compressed, and pass between the blades from *a* to *b*; this motion being continued until the butter will not pass through the openings at *b*; then, by reversing the motion, the bevel of the inner blade serves to throw the whole contents to the centre, where the butter rapidly forms into one solid mass, until the separation is complete. The floats may be instantly removed, and the butter taken out.

It received a *Silver Medal* at the fair of the American Institute, held at New-York, for being, in the opinion of the committee, the best churn ever offered for competition—nearly every other kind in use being in the same exhibition.

Some of the improvements in this churn, are:—There is no shaft through the centre. This form of float passes easily through the cream, and at the same time produces a greater amount of agitation than any others in use. This process of compressing and collecting the butter from the cream is not excelled by any previous invention.

They are offered at about the same prices, according to size, as Kendall's churns, and a liberal discount allowed to dealers. All are warranted to give satisfaction, or may be returned.

Albany Agricultural Warehouse and Seed Store,
No. 369 & 371 Broadway.
Albany, February 1, 1850. H. I. EMERY.

Farms for Sale.

THE Subscriber has several improved farms from 24 to 100 acres each, in Milton, Saratoga county, which he will sell for one-third cash, with a credit of five to ten years on the balance. The produce can nearly all be marketed in the immediate neighborhood, at Albany or Troy prices. Farm or carpenter work would be received for two-thirds or three-fourths of the smaller parcels. Several sober and industrious carpenters would find constant employment at good wages. For further particulars address (post-paid) Ballston Spa, N. Y.
Feb. 1, 1850—1t* SETH WHALEN.

JUST PUBLISHED,
BY DERBY, MILLER AND CO., AUBURN.

THE AMERICAN FRUIT CULTURIST,

BY J. J. THOMAS,

CONTAINING directions for the Propagation and Culture of Fruit Trees, in the Nursery, Orchard, and Garden, with Descriptions of the principal American and Foreign Varieties cultivated in the United States. With 300 accurate illustrations. One volume of over 400 pages, 12 mo. Price $1.

A cheaper, but equally valuable book with Downing's was wanted by the great mass. Just such a work has Mr. Thomas given us. We consider it an invaluable addition to our agricultural libraries. *Wool Grower.*

We predict for it a very rapid sale; it should be in the hands of every fruit grower, and especially every nurseryman. It is a very cheap book for its price.—*Ohio Cultivator.*

It is a most valuable work to all engaged in the culture oi fruit trees.—*Utica Herald.*

It is a book of great value.—*Genesee Farmer.*

Among all the writers on fruits, we do not know of one who is Mr. Thomas' superior, if his equal, in condensing important matter. He gets right at the pith of the thing—he gives you that which you wish to know at once; stripped of all useless talk and twattle. No man has a keener eye for the best ways of doing things. Hence we always look into his writings with the assurance that we shall find something new, or some improvements on the old; and we are seldom disappointed. This book is no exception. It is *full*. There is no vacant space in it. It is like a fresh egg—all good, and packed to the shell full.—*Prairie Farmer.* Jan. 1, 1850.—3t.

Horse Powers and Threshing Machines.

E. PLANT, No. 30 Cedar Street, New-York, Agent for the Proprietor, for making and selling the "Warren" Improved Two and Four Horse Powers and Threshers. Also, "Trimbles."

Price of the "Warren" Two Horse Power and Thresher, only					$80
do	do	Four	do	do	do $110
Price of the "Trimble" Two Horse Power, (without Thresher,)					$60
do	"Warren"	do	do	do	do $50
do	do	Four	do	do	do $75

Bands, from $4.50 to $6.

These *latest Improved* Threshers and Powers give universal satisfaction, and are deemed far superior to any others known heretofore for any thing like their cost.

Cash Orders filled promptly.

N. B. *PURCHASING & COMMISSION AGENCY.*

The undersigned also continues the business of the late E. Plant & J. Plant, (E. Plant & Co.,) of Purchasing for Orders, on Credit or for Cash, Dry Goods, Groceries, Hardware, &c., &c., for a commission of 2½ per cent. Produce, such as Sugar, Cotton, Tobacco, Peltries, &c., also received and sold on Commission. E. PLANT,
Dec. 1, 1849—6t. No. 30 Cedar St New-York.

Good Opportunity for Situation.

A GENTLEMAN in *Eastern Va.*, desirous of engaging in other pursuits for 8 or 10 years, wishes to arrange with some intelligent, upright, industrious, persevering farmer, from the north,—one who can come well recommended in every way, to take charge of his farm on the 1st March next, for a term of years, upon shares.

Said farm is within easy distance of the markets of both Petersburg and Richmond, and near James river. It contains 500 acres—300 arable, well marled; 50 acres of unclaimed meadow, 20 reclaimed, 5 in grass, 150 well set in clover; is excellent wheat, corn, and clover land, and easy to work and improve. There is 100 acres seeded in wheat. The land is well adapted to grazing, and has a fine range for sheep. There is a young orchard—400 choice apple trees, usual stock—utensils, &c.; good house, out-houses, garden, 2 barns, 400 feet of shedding for stock, 2 wells, &c. The farm is well watered. He wishes it converted, as much as possible, into a grazing and dairy farm. He will furnish 6 hands, and provisions for one year, and furniture in house.

To any man who can come suitably recommended, and who is able to invest $2,500 in additional stock (cows or sheep,) and utensils, manures, &c., he will give one-fourth of the *clear profits* for ten years, and the value of the stock he put in at the end of ten years—or refund $2,500, and pay for all *permanent improvement* during that time. The farm must be improved as much as possible—as may be contracted. In selecting cows, it must be with a view to dairy; sheep, for wool and mutton. Any one coming, should bring persons skilled in dairy management. A peach orchard would be found extremely profitable. The entire management, except permanent improvements and alterations, will be given up to the party agreeing. Direct to P. Cabin Point, Va.

N. B. His reason for requiring an investment, is to make the party more interested. The farm can easily be made to realise $4,000 a year, or more, by good management. Hay commands $1, to $1.25. Butter, 20 to 25 cents. The farm is perfectly healthy.
December 1, 1849—3t.

PATENT PORTABLE RAILROAD HORSE POWER.

Patent Portable Railroad Horse Power,

And Overshot Threshing Machine and Separator.

THE above celebrated machines have during the past year been more extensively sold and introduced than during any year previous; and what is most gratifying to all interested, they have given most unqualified satisfaction.

Upwards of three hundred and fifty setts have been sold this season without supply ng the demand.

With increased facilities over those of the past season, for the manufacturing, and some additional improvements in their construction and materials, they are now offered to the public with increased confidence in their superiority over all other threshing machinery, for the farmer's own use and economy.

Their durability is no longer questioned. They have been in use every season for the past seven or eight years, without any perceptible wear or expense other than the necessary oil, and a new plank flooring for every twenty thousand bushels of grain threshed by them.

Some of the advantages of these machines are:

Their portability and compactness, admitting of their use inside of barns during all weathers, thereby protecting both man and beast—and at the same time requiring no more room than for threshing with the flail.

The whole may be operated by the force usually about the farm, without calling together the whole neighborhood, thereby enabling the farmer to thresh his own grain, and at such times as best suits his own convenience, or take advantages of markets.

The One Horse Power, requiring, with a change of horses once or twice a day, but three men to thresh 75 to 100 bushels of wheat or rye, or double the quantity of oats or buckwheat per day. Or with the Two Horse Power, and two horses, without a change, and four or five men, double the amount per day.

The prices will be about the same as last season, viz:

For the One Horse Power, Thresher, Separator, Bands &c., complete, ... $120 00
Two Horse do., complete, ... 150 00

Portable Saw Mills, for sawing wood, slitting boards, plank, &c., for fencing or mechanical purposes, are also furnished when wanted, in complete running order, for $35.

All articles warranted to perform equal to the above representations, or may be returned and purchase money refunded.

For further particulars see catalogue of Albany Agricultural Warehouse, furnished gratis on application or by mail; or the agricultural papers and reports of agricultural socie ies for the past three or four years.

HORACE L. EMERY,
Nos. 369 & 371 Broadway, Albany, N. Y.

N. B.—JOHN MAYHER & CO., No. 197 Water Street, are the the only authorized agents for the above machines in the city of New York, of whom they may be obtained at the manufacturer's home prices.

CAUTION.—Since the above machines have become known and approved, and the demand for them greatly increased, manufacturers of other kinds have copied our descriptions, advertisements and engravings, with the difference of substituting their own names as makers instead of the original. To avoid mistakes, we state that the genuine machines may be known by the mark { Wheeler's Patent } distinctly stamped upon them: and on exami- { *July* 8, 1841. } nation and comparison, it will be found the only simple Rack and Pinion Power, without *Intermediate Gearing*, that can be used for the OVER SHOT Threshing Machine, without *crossing* of the bands, statements, descriptions and advertisements to the contrary notwithstanding. In this difference alone, consists the chief merits of this machine, and it is this, (secured by letters Patent,) which has given them such decided advantages over all other chain powers in use. A single glance at the several kinds, will satisfy any person of the truth and necessity of this CAUTION.

Albany, February 1, 1850.

Agricultural Warehouse and Seed Store.

No. 197 *Water street, (near Fulton,) New-York.*

THE subscribers would respectfully invite the attention of planters and dealers in Agricultural and Horticultural Implements, Garden and Field Seeds, &c., &c., to their large and varied assortment of Garden and Field tools, &c., which they are selling at the very lowest rates that they can be procured in the United States. Persons living at a distance can obtain an "illustrated" Catalogue, containing a list of prices, on application by letter, post-paid. Those ordering from us may depend upon their orders being promptly filled.

The following are a part of the utensils kept for sale by us, which are considered the best in use, all of them having taken the highest premiums:—Wheeler's Railway Horse Power, Threshing Machines and Separators, Grant's Fanning Mills, of six different sizes, for Rice as well as Grain; Mayher's do.; Hovey's Spiral Hay, Straw and Stalk Cutters; Smith's Smut Machines and Buckwheat Cleaners; Beal's Corn and Cob Crushers, for Feed, horse power; Sinclair's Corn and Cob Crushers, for hand or power; Sinclair's Hay, Straw and Stalk Cutters, hand or horse power; Greene's Hay Cutters, 12, 18 and 24 knifes; Mayher's Hay and Straw Cutters, 8, 10, 12, 15, and 18 knifes; Wheeler's Stalk or Cane Cutter, Power Machine; Mayher & Co.'s Corn Shellers, single and double-hand or power; Burrall's Corn Shellers and Separators; Warren's do., wood and iron; Smith's Corn Sheller and Separator, (power,) 1200 Bushels per day; Virginia do. do., hand or power, 600 to 800 bushels per day; Sinclair's do. do. and Husker, power; Whitman's Horse Power, Threshing Machine and Cleaners; Taplins' Horse Powers; Mayher's do. do.; Emery's Threshing Machines, one and two horse power; Emery's Seed Sowers or Corn Planters; Emery's Saw Mill; Emery's Centrifugal Churns; Thermometer Churns, of different sizes; Cylindrical Churns; Atmospheric Churns; Self-Acting Cheese Presses; Hay Presses; Bachelor's Corn Planter; Seed Sowers of different kinds; Bark Mills; Cider Mills; Paint Mills; Coffee Mills; Corn Mills; Fitzgerald's Flouring Mills; Prentiss and Pages' Flouring Mills, Burr Stone; Mayher & Co.'s Eagle Improved Polished Plows, of different sizes and patterns; Worcester do; Mayher & Co.'s common do.; Freeborn do.; Prouty and Mear's Plows of all kinds Center Draught; Sub Soil Plows of different kinds and sizes; Side-Hill do; Double Mouldboard do.; Cultivators, Steel and Cast-Iron teeth; Geddes' Harrows; Ox Yokes and Bows; Single and Double Wiffletrees; Ox Scrapers, of Wood and Iron, large and small; Ox Carts; Farm Wagons; Mule Carts; Wheelbarrows; Canal Barrows; Field and Garden Rollers, Iron and Wood; Wheat Drills; Reaping Machines; Mowing Machines; Rice Hullers; Store Trucks; Ground Augers; Ox-leg and Trace Chains; Pickaxes; Grub Hoes; Rakes, Scythe Sneaths, Grain Cradles, Crow-Bars, &c., &c. In fact, we have every thing wanted for Farming purposes, got up in the best manner, style, workmanship, and of the very best material, of all the latest improvements. We have also for sale a large quantity of the best Seed and Spring Wheat, Oats, Corn, Barley, Rye, Peas, Beans, Turnip, Cabbage, Beet, Carrot, Parsnip, Onion, Radish, Asparagus, Clover and Grass Seed, raised expressly for us, and warranted fresh—a very superior article. We also have a large quantity of Guano, Bone Dust, Lime, Plaster and other Fertilizers on hand. Ornamental and Fruit Trees, Shrubs, &c., of the best quality, furnished to order. Also, Wire Cloth, of all kinds: Castings do., Steam Engines, Sugar Mills Saw Mills, Shingle and Brick Machines, together with Force, Cistern, Well, and other Pumps.

JOHN MAYHER & CO.,
Feb. 1, 1850—tf No. 197 Water street, New-York.

Seedlings.

PEAR, Plum, Cherry, Quince, Apples, Horsechestnut, Mountain Ash, and Buckthorn Seedlings for sale. Also seed of the above kinds of trees. Every variety of Fruit and Ornamental Trees, and grafts of the celebrated Virgalieu Pear of Geneva. For sale at the Geneva Nursery, by

W. G VERPLANCK.
Geneva, Nov. 1.—6t.*

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Fertilizers.

PERUVIAN and Patagonian Guano, Bonedust, Plaster of Paris, Poudrette, and Combined Manure, a new and excellent article.
A. B. ALLEN & CO.,
Feb. 1, 1850. 189 & 191 Water St., New-York.

Agricultural Implements.

THE largest and most complete assortment to be found in the United States, of Plows, Harrows, Rollers, Cultivators, Shovels, Spades, Hoes, Manure Forks, and Seed Planters.
A. B. ALLEN & CO.,
Feb. 1, 1850. 189 & 191 Water St., New-York.

Garden Tools and Pruning Implements.

A GREAT variety of these, of American and Foreign manufacture, constantly on hand. A. B. ALLEN & CO.,
Feb. 1, 1850. 189 & 191 Water St., New-York.

Field and Garden Seeds.

ENGLISH, *French*, *Dutch* and *Belgian* Field and Garden Seeds, fresh imported and warranted.
American Field and Garden Seeds of last years' crop, grown expressly for our establishment, and warranted true of their kinds.
A. B. ALLEN & CO.,
Feb. 1, 1850. 189 & 191 Water St., New-York.

Trees! Trees!! Trees!!!

FOR SALE, at Mount Ida Nursery, Troy, N. Y., a choice variety of Fruit Trees, comprising Apples, Pears, Peaches, Plums, and Cherries, of the most approved kinds—the greater part of them worked from bearing trees, and all of them by the subscriber—therefore he can recommend them with confidence. He would also say to those that have not had the experience, that trees brought from the South (if they do live) do not grow as thrifty for a number of years, as those raised in a Northern latitude, which many persons can prove from experience. He also pays particular attention to the transplanting of his trees so as to have them well rooted.

Also, a good variety of Shade Trees, consisting of Scotch Elm, Sycamore, Linden, Horse Chestnut, Mountain Ash, Evergreen Privet for Hedges, China and Hardy Roses, &c., &c.

Catalogues and other information can be had of the Nurseryman,
Feb. 1—6ms. JOSEPH CALDWELL.

Kinderhook Nurseries.

THE proprietor begs leave to inform his patrons and the public in general, that his stock of

Fruit and Ornamental Trees, Shrubs, Roses, &c.,

For spring planting, is large and thrifty, and embraces all of the best varieties introduced in this country, of Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, Grape Vines, Gooseberries, Currants, Strawberries, &c.

Also, Hedge Plants.

A large lot of Buckthorn Plants, Locust, Privet, Box, &c. Asparagus roots, Rhubarb.

Orders respectfully solicited, and will receive prompt attention. Articles will be carefully packed and shipped to any part of the country.

Catalogues furnished gratis to post paid applicants.
Kinderhook, Feb. 1, 1850—2t. H. SNYDER.

Seeds for Spring Sowing and Planting.

500 bushels of superior Black Sea Wheat, pure, having been but one year raised in the States.

150 bushels of Clump wheat, a new article of spring wheat, of large berry, and said to be a good yielder, and is much grown in Canada.

150 bushels of Italian Spring Wheat.

100 bushels of Spring Rye.

75 bushels of very superior Broom Corn Seed.

A large supply of choice Clover and Timothy seed, a low prices, at wholesale or retail.

Garden and Field Peas, any quantity.

A fresh lot of Garden Seeds, wholesale or retail.

For sale at the Albany Agricultural Warehouse and Seed Store, No. 369 & 371 Broadway. Feb. 1, 1850. H. L. EMERY.

Louisville (Ky.) Seed and Agricultural Store.

THE subscriber offers for sale,

1000	bushels	Kentucky Blue Grass seed,	
600	"	Red Top,	"
200	"	Orchard Grass,	"
200	"	Prime Timothy	"
500	"	" Red Clover	"
200	"	Hemp	"
100	"	Millet	"
100	"	Buckwheat	"

Also, Lucerne and White Clover.

30,000 papers Garden Seeds, assorted, and all varieties of Garden Seeds by the pound.

50,000 Fruit Trees, consisting chiefly of Apple, Peach, Pear, Cherry and Quince.

Also, Grape Vines, Asparagus roots, Strawberry plants, &c., &c., from the nurseries of L. Young, H. P. Byram & Co., Jas. Orr, and G. G. Hikes of this vicinity.

He also keeps every variety of Agricultural and Horticultural Implements on hand, and will be happy to fill orders (accompanied with cash or satisfactory reference) from all parts of the United States.
Feb. 1—2t. A. G. MUNN.

Seneca Lake Highland Nurseries.

Catharine, Chemung County, N. Y.

DURING last Summer, an agent of a Rochester Nursery, was at some of the villages in this part of the State, procuring orders for trees, and to some if not all persons of whom he asked patronage, took occasion to introduce my name, by stating "that I purchased of that Nursery most of the trees I sold—that I had yearly at that place from eight to ten hundred dollars worth," &c., &c. And on the delivery of trees in the Fall, to counteract dissatisfaction on the part of those who had given him orders, falsely stated that I then owed it about $1000—he having manifested a great disregard for truth, and a most disrespectful propensity.

The facts are these:—In all my exchange and deal with any and all persons in this State, west of Cayuga Bridge, I never have purchased, had or received, $200 worth of trees.

Nothing but self-defence would induce me to notice this, for I do think that above all things, Nurserymen, who claim the least iota of patronage, ought to adopt, and strictly adhere, to rules of honesty and fair dealing.

Having 40 acres of Nursery and Standard Trees, I am well prepared to furnish at reduced prices, wholesale or retail, all kinds of FRUIT TREES cultivated in this climate, ORNAMENTAL TREES AND SHRUBS, GREEN-HOUSE PLANTS, &c., &c.

Trees carefully packed and forwarded by public conveyance to any part of the Union.

Being located within two miles of the Chemung Railroad, used by the N. Y. & Erie R. R. Company, their agent's receipt will be forwarded by mail on their delivery.

Packages going East or West will reach the Erie Railroad at Elmira, 16 miles South of this, and the Buffalo and Albany route at Geneva, 45 North, which makes it a very desirable location for sending trees by public conveyance.

Neither the Pear or Plum Blight, or Peach Yellows, are known at this location.

Trees can be furnished of the new popular "Wagener" Apple—also the "Douse" or "Hawley."

The Horticultural Advertiser, containing a priced Catalogue, furnished gratis to all post-paid applicants.
Feb. 1, 1850—1t. E. C. FROST.

THE CULTIVATOR

Is published on the first of each month, at Albany, N. Y., by

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LUTHER TUCKER & SANFORD HOWARD, Editors.

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☞ All subscriptions, not renewed by payment for the next year, are discontinued at the end of each volume.

☞ The back vols. can be furnished to new subscribers—and may be obtained of the following Agents:

NEW-YORK—M. H. NEWMAN & Co., 199 Broadway.

BOSTON—J. BRECK & Co., 52 North Market-st., and E. WIGHT, 7 Congress-st

PHILADELPHIA—G. B. ZIEBER.

ADVERTISEMENTS—The charge for advertisements is $1, for 12 lines, for each insertion. No variation made from these terms.